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U. S. DEPARTMENT OF AGRICULTURE

INFORMATION FOR APPLICANTS FOR FEDERAL MEAT INSPECTION

By the Federal Meat Inspection Service

The Federal meat inspection service is administered by the Meat Inspection Division of the Bureau of Animal Industry. The administrative offices are in Washington, D. C.

The purpose of the Federal Meat Inspection Act approved March 4, 1907, is stated in the Act as:

" . . . for the purpose of preventing the use in interstate or foreign commerce . . . of meat and meat food products which are unsound, unhealthful, unwholesome, or otherwise unfit for human food"

The Act is intended to assure a healthful and wholesome meat supply in interstate and foreign commerce. The inspection maintained at a plant covers the entire production of the plant regardless of the proportion shipped in interstate or foreign trade.

The Act of 1907 applies only to cattle (including calves), sheep, swine, and goats, and the edible products derived from their carcasses. Its provisions are, however, extended to horses by the Horse-Meat Act. The slaughtering of horses or the preparation, processing and handling of horse meat must be conducted in establishments wholly separate and apart from those slaughtering cattle, sheep, swine, and goats, or preparing products derived from such animals. Wild animals, poultry, fish, and game are not subject to its provisions. Food products derived from such species are subject to State laws and local ordinances, and, if shipped in interstate or foreign commerce, are subject also to the provisions of the Food, Drug and Cosmetic Act, administered by the Food and Drug Administration of the Federal Security Agency. Dressed poultry and poultry products may also be inspected by the Poultry Inspection Service of this Department.

The cost of Federal meat inspection is paid by the Government insofar as the salaries of inspectors for services during regular hours are concerned. However, the packer is required to compensate the Government for the cost of overtime inspection. The cost of preparing, equipping, and maintaining the plant in condition to meet inspection requirements, and losses resulting from condemnation of animals, carcasses, or products must be borne by the owner or operator of the plant.

Under certain specific provisions of the Act, retail meat dealers and farmers may make interstate shipments of meats or meat food products without operating under Federal inspection; however, the Secretary of Agriculture may, at his discretion, require that such persons apply and qualify for the inspection. The term "farmer", insofar as Federal meat

inspection is concerned, is defined in the amendment to the Act of June 29, 1938.

The owner or operator of any slaughtering or meat processing plant who contemplates engaging in interstate or foreign trade in meat or products derived from cattle (including calves), sheep, swine, or goats, or furnishing such products to Federal agencies, should address the Chief, Meat Inspection Division, Bureau of Animal Industry, U. S. Department of Agriculture, Washington 25, D. C., and furnish detailed information relative to the nature and volume of the proposed operations. In reply, he will be informed whether the proposed business requires or entitles him to Federal inspection, and if so, he will be furnished a form upon which he may make a formal application therefor. With such application he will be required to furnish plans and specifications of the proposed plant, as hereinafter indicated. Pending the receipt of information concerning the eligibility of the plant for the inspection, including the approval of plans and specifications, it is highly important that the applicant refrain from acquiring property, or undertaking construction, or remodeling for the contemplated operations, as failure to observe this suggestion may result in unnecessary expense and inconvenience.

Drawings to Accompany Application for Inspection

Blueprints of drawings with specifications, in triplicate, of the applicant's plant as he proposes to have it constructed and equipped for the inspection should be submitted to the Meat Inspection Division, at Washington D. C. with the application for inspection. The drawings should be prepared to scale, preferably 1/4 inch a foot, and should include the following:

- (a) Plot plan of the entire premises showing location of all buildings, roadways, railroad trackage, streets and alleys adjoining the plant, streams, catch basins, water wells, reservoirs, and storage tanks. If near-by buildings exist on adjoining property, their height and use should be indicated. The character and surfacing of roadways, driveways, streets, and the paving of vehicular loading areas, livestock pens and alleys should be indicated.
- (b) Floor plans of each level in the various buildings showing the locations of walls, partitions, posts, doorways, windows, and other openings, floor drainage inlets and gutters, rail systems for conveying carcasses, parts and product, chutes, arrangement of slaughtering layouts, location of the principal pieces of equipment, hot and cold water hose connections, and hand-washing facilities (lavatories). The slope of floors to drainage facilities should be indicated by grade lines. The location of sectional lines should be shown on the floor plans. For convenient reference, it is desired that the north point be shown on the floor plans as well as on the plot plan.

(c) Cross-sections and longitudinal sections of the various buildings showing the character and finish of floors, walls, partitions, ceilings; heights of ceilings, the principal pieces of equipment, and rails.

(d) Exterior elevations on each side of each building showing locations and sizes of doors, windows, and other openings.

(e) Specifications or notations (see Pages 36-42) placed directly on the drawings, or separate from but attached to them, covering features such as source of water supply, method of sewage disposal, description of the trapping and venting of drainage lines, description of hot water system, means to dispel steam and vapor in workrooms, and screens for outer openings that would admit flies.

If the examination of the drawings and specifications shows that they meet the requirements, the formal mark of approval is placed on them and an approved set is returned to the applicant. The other two sets are retained for reference.

Because of the specialized knowledge required to design and construct a well-arranged meat packing plant, a competent architect or engineer experienced in laying out plants for operation under Federal meat inspection should be employed to prepare the drawings and specifications. Construction should be deferred until the drawings and specifications have been approved by the Meat Inspection Division.

Location of Establishments

Features of primary importance in connection with the location of a slaughtering or processing plant operated under Federal meat inspection are:

Water Supply: Must be ample, potable (fit for drinking), and distributed throughout the plant under adequate pressure and in quantities sufficient for all operating needs. Both hot and cold water should be provided, the hot water from a central heating plant of sufficient capacity or from other suitable facilities capable of furnishing an ample supply. Water from public water supply systems is usually, but not invariably acceptable. If the water is supplied from private wells, the wells should be upon the premises of the establishment and effectively protected from pollution. A non-potable water supply is a potential source of danger. If such a supply is necessary for fire protection or for the condensers of the refrigerating system, it should be kept separate from the potable supply. If a cross-connection between the two supplies is necessary, it should be one that will adequately safeguard the potable supply, and be acceptable to the Meat Inspection Division and local health authorities. Non-potable water lines within buildings in which edible products departments are located should be avoided.

Sewage Disposal: May be into a municipal sewer system and if this is permitted by local ordinance, it is most desirable. If the discharge is into a stream, the flow must be sufficient at all seasons to carry the sewage well away from the plant and the method of disposal acceptable to local health authorities having jurisdiction over such matters.

Expansion; Relation of Inedible to Edible Products Departments: In planning a plant, due consideration should be given to providing space and an arrangement of buildings that will permit of future expansion. To this end, the slaughtering department, coolers, rendering facilities, etc., should be so located that they may be enlarged without adversely affecting other departments. A separate roadway not used for meat trucks should be provided for bringing in livestock in trucks to a pen section located in the rear of the plant. Features such as the inedible products tanking and fertilizer departments and catch basins for grease recovery should be suitably located in the rear of the plant so as to avoid objectionable conditions affecting the preparation and handling of edible products.

Separation: An establishment operating under Federal meat inspection must be completely separated from any other plant and buildings, whether used for industrial, commercial, residential, or other purposes. No communications by means of doorways, windows, stairways, elevators, or passageways, loading or unloading platforms, or loading courts are permissible.

Construction

Floors, Walls, and Ceilings: To promote good sanitation the floors, walls, and ceilings in the various workrooms should be constructed of material that can be readily kept clean. Wood structures and equipment are absorbent and difficult to keep clean, and for that reason the use of wood should be restricted as much as possible. (In lieu of dressed and matched lumber, the use of plywood which is available in large sheets, is preferable as there are fewer joints that offer a harbor for roaches or other vermin.) Floors requiring drainage should be constructed of impervious material, such as dense concrete or vitrified floor brick of good quality laid on a concrete base. Interior wall and, so far as structural considerations permit, ceiling surfaces should be smooth and flat. Wall surfaces in workrooms should be constructed of glazed brick, glazed tile, smooth portland cement plaster, or other nonabsorbent material. Ceilings should be of good height (about 10 feet or more), and to avoid damage to glass in windows from impact of hand trucks, the window sills should be 3 ft. or more above the floor. Window sills should be sloped about 45° to promote sanitation.

Floors and Drainage: All parts of floors where wet operations are conducted should be well drained. A slope of about 1/4 inch a foot to drainage inlets is desirable for usual conditions. To avoid accidents,

excessively smooth floors should be avoided. Good results have been obtained by laying concrete floors with a topping containing hard particles, such as carborundum, so as to afford a good foothold, or by giving them a wood float finish. Each floor drain, including blood drains, should be equipped with a deep-seal trap (P-, U-, or S-shape). The drainage lines should be at least 4 inches in diameter and properly vented to the outside air. Drains for paunch contents should be at least 8 inches in diameter to avoid clogging. Drainage lines from toilet bowls and urinals should not be connected with other drainage lines within the building and should not discharge into a grease catch basin. Such lines should be located so that if leakage develops it will not affect product. Where there is likelihood that the water seals in traps will evaporate without replenishment from floor drainage, as in the case of dry-storage rooms, the floor drains should be provided with suitable removable plugs. Floor drainage valleys about 24 inches in width and integral with the floor are required under the dressing rails for hogs, sheep, and calves.

Lighting: The regulations require that unrefrigerated workrooms be provided with means for furnishing adequate direct natural light and ventilation. Uncolored glass having a high transmissibility of light should be used in windows and skylights, and the glass area should approximate one-fourth of the floor area of a workroom. This ratio should be increased where there are obstructions which interfere with the admittance of direct natural light, such as adjacent buildings, overhead catwalks, and hoists. Well distributed artificial lighting of good quality is required at all places where, or at times when adequate natural light is not available. The overall intensity of artificial illumination should be not less than 20 foot candles. At all places where inspections are made or where special illumination is required to enable establishment employees to properly prepare products of any character to meet the requirements of the inspection, the illumination should be not less than 50 foot candles.

Ventilation: Adequate means for ventilation should be provided in workrooms. This may be furnished by means of ventilating type windows and sky-lights or by artificial means such as a fan and duct system. In locations subject to the presence of dust and objectionable odors, such as those adjoining livestock pens, runways, etc., windows should be of the fixed type. In refrigerated rooms where a considerable number of operatives are continuously employed, as in cutting rooms and bacon-slicing rooms, where natural ventilation is limited, adequate mechanical ventilation should be supplied. An adequate amount of outside air should be continuously introduced into such rooms and the fresh air intakes should be so located that the air is not contaminated with dust, smoke, etc.

Equipment

Equipment should be so constructed that it can be readily kept clean. Excepting equipment such as cutting boards, metal

equipment should be provided. Rust-resisting metal such as stainless steel should be used for equipment subject to hard usage and corrosion, such as viscera inspection pans and trucks, the tops of sausage-stuffing tables, the hooks of beef carcass trolleys, and storage racks for livers, hearts, tongues, etc.

Sheet-metal coverings on sidewalls, posts, tops of wood tables, the inner surfaces of meat-handling trucks, meat chutes, and curing and cooking containers have proved unsatisfactory from the standpoint of sanitary maintenance and are not acceptable.

Equipment wasting water, such as soaking and cooking vats and sausage-stuffing tables, should be installed so that waste water is delivered into the drainage system without flowing over the floor. Soaking and cooking vats should be provided with overflow pipes at least two inches in diameter. The upper end of each overflow pipe should be equipped with an open-end clean-out tee to facilitate cleaning. Stationary equipment and equipment not readily movable should be placed at least 12 inches from floors, walls, posts, and other fixed parts of the building and from other equipment to facilitate ready cleaning of outer surfaces. Vent stacks from covered cooking vats should be so arranged as will preclude drainage of condensate back into the vats.

A separate washroom or area should be provided for cleaning curing vats, hand trucks, utensils and containers such as boxes and trays. The room or area should have adequate direct natural light and ventilation, impervious well-drained floor, and impervious walls and ceiling.

Conveniently located hand-washing facilities (lavatories) should be provided for the use of employees and inspectors. Each lavatory should be supplied with hot and cold running water delivered through a combination mixing faucet with outlet about 12 inches above the rim of the bowl to facilitate washing arms as well as hands, liquid soap in a suitable dispenser, an ample supply of sanitary towels, and a suitable receptacle for used towels. Lavatories in workrooms should be foot pedal-operated. Sterilizers for knives, cleavers, and other implements should be provided adjoining the lavatories where required. Sterilizing receptacles should be constructed of rust-resisting metal and should be of sufficient size for complete immersion of the implements in scalding hot water. Each sterilizing receptacle should be provided with a water line, a steam line, an overflow, and facilities for completely emptying the receptacle.

Sanitary drinking fountains for the use of employees should be provided in large workrooms and in dressing rooms. If desired, they may be located at lavatories and so arranged that the overflows discharge into the bowls of the lavatories. If so located, they should be placed sufficiently high above the bowls to avoid splash onto them when the lavatories are used.

The locations of lavatories, lavatory-sterilizers, drinking fountains, and other similar features should be shown on the drawings.

Slaughtering Departments

Slaughtering departments should have adequate floor space and be arranged to facilitate the sanitary conduct of operations and the efficient performance of the inspection. Truckways over which products are conveyed from the slaughtering room to rooms such as the offal cooler, the edible products tank charging room, and the inedible products tank charging level should be located so that the material is not trucked beneath rails from which dressed carcasses and product are suspended. The truckways should be clearly designated on the drawings.

The maximum hourly rate of slaughter for each kind of animal slaughtered and whether more than one kind of animal will be slaughtered at the same time should be given on the drawings of all slaughtering layouts submitted for approval. Also, it should be stated whether animals will be slaughtered by the kosher method.

To avoid delays in ante mortem inspection, sufficient pen capacity for holding the maximum number of animals of the various kinds that will be slaughtered in a single day should be provided in the pen section. The pens and runways should be paved with concrete or brick and, except at gateways, have side curbs of similar impervious material 12 inches or more in height and suitable drainage facilities.

To facilitate the ante mortem inspection of animals, ample natural and artificial lighting, and a suitable suspect pen and a squeeze pen for temperaturing animals should be provided. Holding and shackling pens should be located outside of or effectively separated from the slaughtering room, so as to avoid objectionable conditions in the room due to dust and odors.

Suitable facilities should be furnished for bringing crippled animals into the slaughtering room, and power-driven hoists should be provided for elevating cattle, hogs, calves, and sheep to a bleeding rail.

Suitable properly located facilities and adequate space for them should be provided for separating the viscera of the various species of animals slaughtered. The cattle paunch emptying table should be equipped with a power-operated lift, and if paunches are saved for edible purposes, the top of the table should extend over the emptying hopper about 12 inches and the sides of the hopper should extend down vertically below the top of the table at least 3 feet to avoid soiling the paunches. (See drawing herewith)

Prints showing desired arrangements and features relative to slaughtering facilities at establishments where Federal meat inspection is maintained, scale drawings of dressed carcasses, and a summary of principal minimum distances, some of which also appear upon the drawings, are included herewith for the information of owners and architects. Moving-top

viscera inspection tables and carcass conveyors synchronized in their movement with the inspection tables are required where the rate of slaughter exceeds 20 hogs, calves, or sheep per hour.

Slaughtering Facilities

The following should be provided in departments for slaughtering cattle, calves, sheep, and hogs:

Cattle: (1) Dry area at least 5 feet wide in front of the knocking pen for receiving stunned animals ejected from the pen, the area to be separately drained and sufficiently removed from the bleeding area.

(2) Curbed-in bleeding area so located that blood will not be splashed upon stunned animals lying on the dry area or upon carcasses being skinned on the siding beds.

(3) A distance of 16 feet or more between the vertical of the drop-offs to the pritch-plate area and the vertical of the line of the hoists where carcasses are eviscerated. This is needed to provide space for the evisceration of carcasses, the trucking of product, and for the inspections made at this point.

(4) Fourteen feet or more between the line of the aforementioned hoists and the header rail leading to the cooler, to provide the length of dressing rails needed for dropping hides, splitting chucks, etc.

(5) At least 3 feet between the header rail and the adjacent wall for the clearance of dressed carcasses transferred on the rail.

(6) Bleeding rail with its top at least 16 feet above the floor and dressing rails at least 11 feet above the floor.

(7) Suitable facilities and adequate floor space for flushing and washing, inspecting and storing heads on racks or trucks after removal from carcasses. (Show the details of the construction of this equipment on the drawings, see drawings herewith).

(8) Separately drained area for cleaning and disinfecting viscera inspection trucks is located at the point where condemned material is discharged from the trucks. Area to be about 7' x 8' with impervious walls 8 feet or more in height on three sides to confine splash. Floor of the area to be pitched about 1/2 inch per foot to a drain in a rear corner.

(9) Efficient drainage facilities for the dressing beds. The pritch-plate area should pitch in a plane from a high-line about 2 feet in the rear of the rumps of pitched carcasses to the edge of the pritch plates and then converge to a floor drain in front of the curb of the bleeding area. From said high-line, the floor should pitch in the other direction to a floor drain centrally located between the dressing beds and about 3 feet beyond the line of the hoists where carcasses are eviscerated. (See drawing herewith).

(10) A properly constructed hide chute near the point where hides are removed from carcasses. The chute should have a hood of substantial metal construction with a push-in door closely fitting a metal frame inclined so as to be self-closing by gravity. The hood should have a vent pipe at least 10 inches in diameter extending to a point above the roof.

(11) Viscera inspection trucks and head inspection facilities (trucks or racks) of suitable type.

Calves and Sheep: (1) Bleeding rail with its top at least 11 feet above the floor. If sheep only are handled in the bleeding section, the height of the bleeding rail may be less (about 9 feet).

(2) Dressing rails of such height that gambrels or leg hooks from which carcasses are suspended are 7' 3" above the floor or inspector's platform. When dressed on the same layout as hogs, the gambrel is 7' 6" above the inspector's platform. If calves are slaughtered by the kosher method, space for removal of heads before carcasses dressed with the skins on are washed and for the placement of the removed heads on a head truck for conveyance to the place of viscera inspection is required. An unobstructed route for conveying the heads to the point of inspection should be provided.

(3) Adequate space along the rail for skinning legs and for skinning and removing calf heads before carcasses are transferred from shackles to gambrels. (The transfer point and the places where the principal dressing operations are performed should be indicated on the drawings.)

(4) Proper facilities for washing the skins of calf carcasses before making incisions, except the sticking wounds, if carcasses are dressed with the skins on.

(5) Suitable facilities for flushing, washing, inspecting, and storing calf heads.

(6) Facilities for the inspection of viscera, on layouts where the rate of slaughter is less than 20 calves or sheep per hour, consist of a hopped metal stand of the proper size to accommodate two inspection units of two pans each (total four pans - length of stand about 6 feet), the larger pans (for the inspection of abdominal viscera) to be 24" x 30" x 3", and the smaller pans (for thoracic viscera) to be 12" x 30" x 3", the pans to have handles or hand holes for convenient removal so located that they do not interfere with the movement of the inspector and eviscerator alongside the stand and perforated with holes about 1/4 inch in diameter, 3 inches on centers. The height of the stand to be such that the bottoms of the pans are about 34 inches above the floor when in use in the stand. Stand to be directly connected to the drainage system through a deep-seal trap or waste pipe to discharge directly into a floor drain. The stand when in use to be placed with its longest dimension at right angles to the dressing rail and its end about 2 feet from the rail, measured horizontally.

(7) Drip valley 24 inches wide beneath the dressing rail from the bleeding area to the point where viscera inspection is completed.

(8) Calves of such size that there is not a clearance of at least 8 inches above the drip valley when suspended from the dressing rail or whose viscera is of such size that it is not readily transferred manually and unaided by the eviscerator from the carcasses to the inspection stand are not to be dressed on a dressing rail but skinned and eviscerated as cattle on the cattle dressing beds. (Notation covering this should be placed on the drawings).

(9) Suitable facilities for washing sheep carcasses after removal of pelts and for washing calf and sheep carcasses after evisceration.

Hogs: (1) Scalding vat and gambreling table constructed of metal; dehairing machine located within a curbed-in area having non-clogging drainage inlet; gambreling table; facilities for dipping carcasses in a rosin mixture as an aid to cleaning them (if installed); and singeing operations located in a compartment separated from the carcass dressing room, except for the necessary openings for the passage of carcasses and for access.

(2) Adequate space and facilities for the proper conduct of operations and the efficient performance of the inspection with facilities arranged so that it is not necessary to truck or otherwise convey product through a line of carcasses suspended from the dressing rails.

(3) A drip valley 24 inches wide and integral with the floor, pitched to properly located drainage inlets in the valley. The drip valley should extend from the point where carcasses leave the gambreling table to the point where carcass inspection is completed. The floor may be pitched to drain to the drip valleys.

(4) Shaving rail of adequate length and a carcass washer of the cabinet type having separate drainage facilities.

(5) A rail layout for a maximum rate of 20 an hour arranged so that one inspector may perform all the necessary inspections (See drawings of layout for this and higher rates herewith). A hopped metal stand should be provided for the inspection of viscera and heads. The stand should be of the proper size to accommodate a viscera inspection pan 24" x 30" x 3". Pans should have perforated bottoms. A conveniently located receptacle containing boiling water should be provided for sterilizing the viscera inspection pans. Two pans and two head racks should be provided, one for use in the stand while the other is being sterilized. A pan 24" x 36" x 3" and a hopped metal stand to accommodate the pan and a head holder if calves are slaughtered on the hog layout. For layouts having a maximum rate exceeding 75 an hour but not more than 150 an hour, the moving top table shown on Page 28 is extended accordingly up to 44' 0" (14 units of 2 pans each up).

Other Requirements

The cooler facilities should have ample capacity for the volume of slaughtering conducted. Cooler rails should be spaced at least 2 feet from walls, columns, refrigerating equipment, and other fixed parts of the building. The type of refrigeration should be indicated, and, if wall coils are installed, a drip gutter of concrete or other impervious material integral with the floor and properly connected with the drainage system should be provided beneath the coils. If overhead refrigerating facilities are installed, insulated drip pans properly connected to the drainage system should be placed beneath them. Walls of coolers should be of impervious material and of such construction that they will not be damaged by the impact of hand trucks. The tops of cooler rails above the highest part of the floor should be at least 11 feet for halves of beef, 9 feet for hog carcasses with heads removed (trolleys 12 inches long), and 7' 2" for quarters of beef. Calf and sheep carcasses should be suspended so that the hooks or gambrels are at least 7' 3" above the floor.

A suitable compartment should be provided in a cooler for holding retained carcasses and parts. The compartment may be separated from the remainder of the cooler by partitions of heavy wire (No. 9 gauge 1-inch mesh is suitable) extending from about 2 inches above the floor to the ceiling. The compartment should have a door of similar material at least 4 feet wide, equipped for locking or sealing. If it is desired to save cattle carcasses retained for refrigeration on account of infestation with *Cysticercus bovis*, a similar compartment for holding such carcasses in a freezer at a temperature not higher than 15° F. for at least 10 days should be provided. Suitable facilities for holding edible organs and parts (offal) under refrigeration in a separate cooler or in a separately drained part of a carcass cooler are required.

Doorways through which product is transferred on rails or in hand trucks should be at least 5 feet wide.

Elevator platforms are least 6' 6" x 7' 6".

Well arranged facilities for rendering inedible and condemned material should be provided at slaughtering plants. Inedible products departments must be separate and distinct from those used for edible products, except that the tank-charging room of the inedible products rendering department is allowed one connecting doorway from the slaughtering or viscera separating departments. The arrangement of the inedible products tankhouse should be such that material is mechanically elevated to an upper level and gravitated to rendering units on a lower level. At least two rendering units should be provided for the prompt disposal of condemned and inedible material in case of the breakdown of one of the units. If rendering facilities are not provided, it is required that condemned material be denatured and held in water-tight metal containers in a suitable inedible products room pending daily removal to a rendering plant. Permission to convey such material over public streets and highways should be obtained from the State and local authorities having jurisdiction in such matters.

Waste material such as paunch contents, hog hair, blood, and pen manure must be disposed of without creating objectionable conditions, and the drawings or specifications should indicate how this will be accomplished.

Every practicable precaution should be taken to keep official establishments free of flies, rats, mice and other vermin. Rat-proof construction is recommended as an effective means of preventing infestation. Control of roaches is in a large degree dependant upon structural conditions. Therefore, types of construction which do not offer hiding places and harbors for them are highly desirable.

Catch basins for the recovery of grease should be suitably located and not placed near edible products departments or areas where edible products are unloaded from or loaded onto vehicles. To facilitate ready cleaning, such basins should have inclined bottoms and should be without covers. They should be constructed so that they can be completely emptied of their contents for cleaning, and hose connections for furnishing hot water for clean-up purposes should be provided at convenient locations near the basins. The area surrounding an outside catch basin should be paved with impervious material such as concrete and provided with suitable drainage facilities. Suitable facilities for the transfer of grease to the point of disposal, after it is skimmed from the basins, should be provided.

Welfare Rooms: Well-located and properly separated toilet and dressing-room facilities are required for employees of each sex. The number of employees using each dressing-room should be given on the drawings. Each employee should be provided with a metal locker at least 15" x 18" x 60". To permit ready cleaning beneath the lockers, they should be raised about 16 inches above the floor on legs or other suitable supports. The lockers should have sloping tops. To maintain orderliness and to permit of ready cleaning of the floor under the lockers, it is desirable to provide a loose wood plank seat about 12 inches wide in front of and below the doors of the lockers. The aisle width between the removable wood seats should be about 5 feet in large dressing rooms.

Dressing rooms must be separated from adjoining toilet rooms by tight, full-height walls or partitions. A toilet room should not be entered directly from a workroom, but through an intervening dressing room or toilet room vestibule. Toilet rooms, dressing rooms, and toilet-room vestibules should have solid, self-closing doors completely filling the doorway openings. Water closets should be provided in sufficient number for the employees using them (at least one unit for 25 men or 20 women). A sufficient number of modern-type hand-washing basins (lavatories) are required in welfare rooms, and such rooms, particularly at plants where slaughtering operations are conducted, should be provided with suitable shower-bath facilities. The floors of toilet rooms and dressing rooms should be of impervious material and be pitched about 1/8-inch per foot to properly located floor drainage facilities. (If stall type urinals are provided, the floors should pitch to drain into the urinals; if the urinals are of the wall type, floor drains should be provided immediately beneath such fixtures.) Such rooms should have means for furnishing abundant direct natural light and good ventilation.

Inspector's Office: A well-located inspector's office at least 7' 0" x 9' 0" is required at each official establishment. The office should be located so that it is not entered through a company office, and it should be supplied with suitable furniture, including a desk and chairs, a metal clothing locker for each Government employee, a metal cabinet equipped for locking for the storage of supplies, and lavatory facilities. Shower-bath facilities should be furnished in the inspector's quarters at establishments particularly where slaughtering operations are conducted, and adequate separate toilet-room and dressing room facilities should be provided in the inspector's quarters at establishments of such size that the assignment of several inspectors is required.

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The foregoing covers some of the principal construction and equipment requirements of the Federal Meat Inspection Service. This information is subject to change as found necessary, due to developments in methods, equipment, etc. Widely varying conditions are met in designing meat packing plants and, therefore, it is not practicable to furnish complete information for owners, architects and engineers. If further information is desired, please communicate with the Washington office of the Meat Inspection Service.

S U M M A R Y
PRINCIPAL MINIMUM DISTANCES

(Rail heights are measured from top of rail to highest part of floor)

Cattle Slaughtering Departments

Description	Vertical Distances
Bleeding rail (distance from rail to point of application of shackle to shackled foot - 48")	16' 0"
Dressing rails (trolley length - 15")	11' 0"
Beef cooler rails (trolley length - 15")	11' 0"
Rails for beef in quarters (trolley length - 15")	7' 2"
Moving equipment - Heights of conveyor rails, platforms, top of viscera inspection table, etc.	See dimensions on attached drawings
Description	Horizontal Distances
Dry area in front of knocking pen	5' x 8'
Curb of bleeding area to pritch plates (no header rail)	5' 0"
Line of drop-offs to line of half hoists (2 beds)	16' 0"
Line of drop-offs to line of half hoists (3 beds or more)	18' 0"
Line of half hoists to header rail leading to cooler	14' 0"
Between header rail and carcass washing rail, if parallel	6' 0"
Between header or washing rails and wall of slaughtering room	3' 0"
Between center lines of dressing beds	8' 0"
Between pairs of dressing rails	4' 0"
Between moving top table and dressing rail at inspector's platform	5' 6"
Area for sterilizing viscera inspection truck	7' x 8'

Calf and Sheep Slaughtering Departments

Description	Vertical Distances
Bleeding rails for calves (distance from top of rail to point of application of shackle to shackled foot - 30")	11' 0"
Bleeding rails if only sheep are slaughtered	9' 0"
Gambrels or leg hooks from which calf or sheep carcasses are suspended to floor or inspector's foot platform	7' 3"
Cooler rails, calf carcasses	Gambrels 7' 3" above floor
Cooler rails, sheep carcasses on logs	Hooks of logs 6' 6" above floor
Moving equipment	See attached drawings
Description	Horizontal Distances
Vertical of rail to edge of viscera inspection stand	2' 0"
Length of rail from point of evisceration to point where carcass inspection is completed	6' 0"

Hog Slaughtering Departments

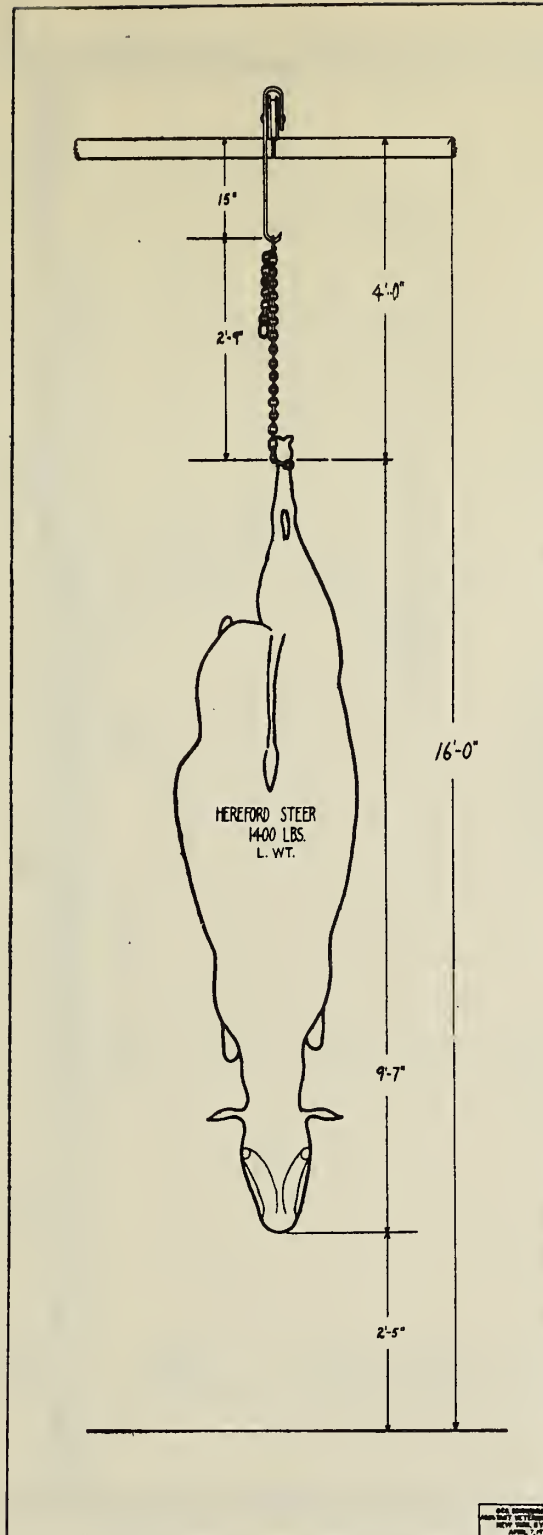
Description	Vertical Distances
Bleeding rail to sticker's platform	10' 6"
Extension of bleeding rail to top edge of scalding vat	9' 0"
Dressing rails	11' 0"
Gambrels (suspending carcasses) to floor (12" trolleys)	10' 0"
Distances from rail to bottoms of inspection pans and various foot platforms	See dimensions on attached drawings
Rails in coolers for hog carcasses with heads removed (12" trolleys)	9' 0"
Rails in coolers for carcasses with heads attached (12" trolleys)	10' 0"
Description	Horizontal Distances
Vertical of dressing rail to various foot platforms and widths of platforms	See dimensions on attached drawings

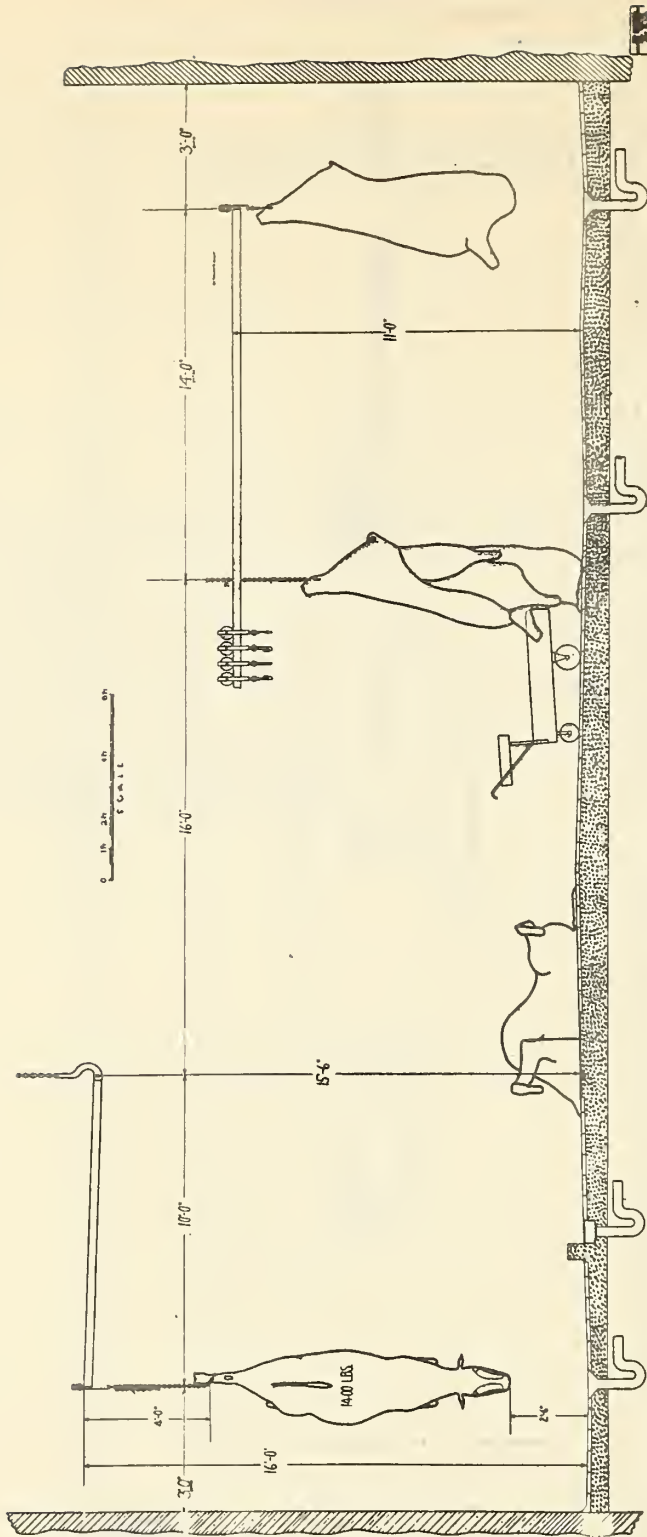
Horse Slaughtering Departments

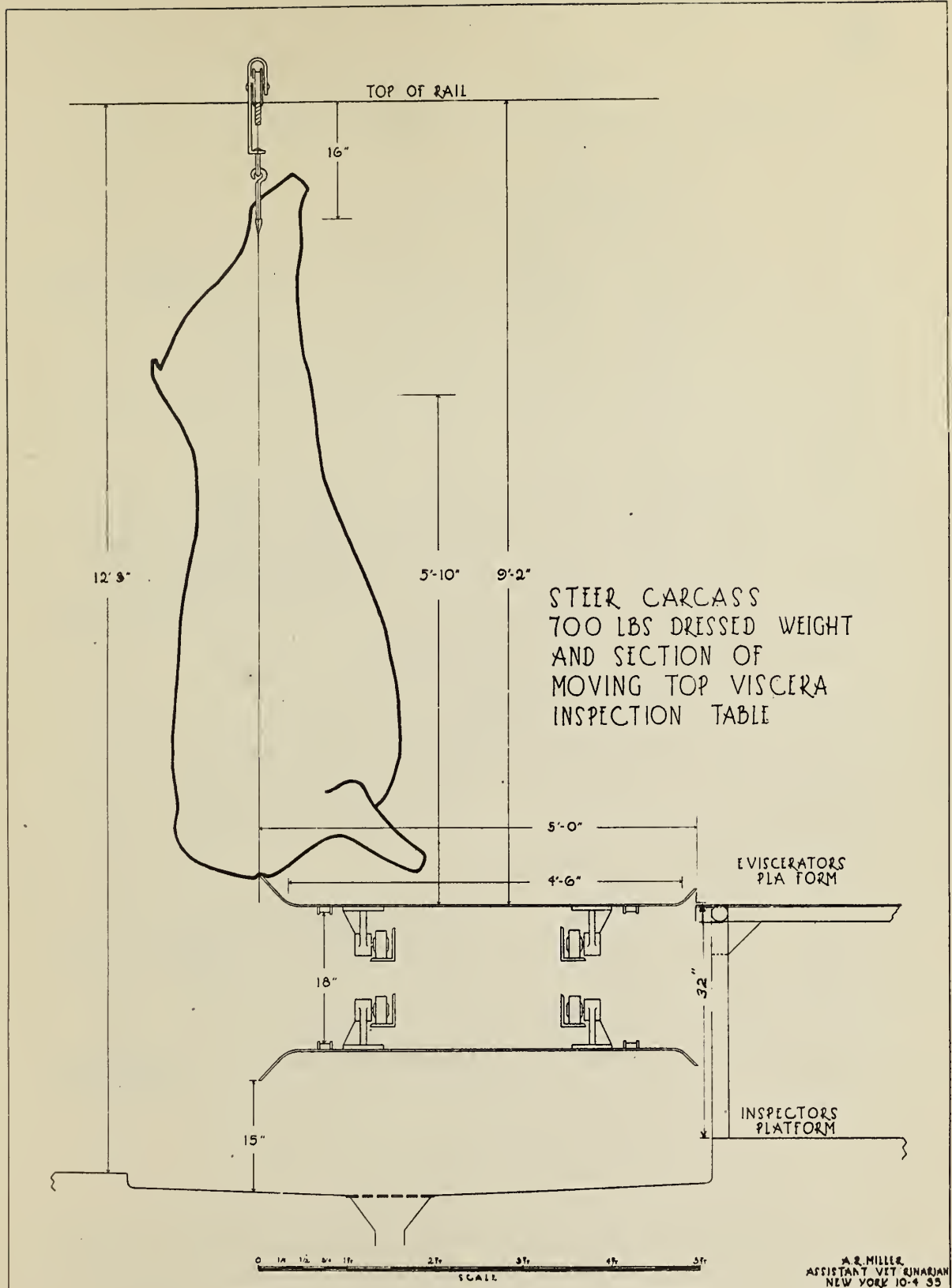
Description	Vertical Distances
Bleeding rail	18' 0"
Dressing rails (trolley length 15")	12' 6"
Cooler rails (" " ")	12' 6"
Cooler rails for carcasses in quarters	8' 6"
Description	Horizontal Distances
Line of drop-offs to line of half hoists	17' 0"
Clearance between walls, posts, etc., and adjoining rails in slaughtering rooms and coolers	2' 6"
Curb of bleeding area to pritch plates	6' 0"
Dry landing area (minimum)	5'x 8'

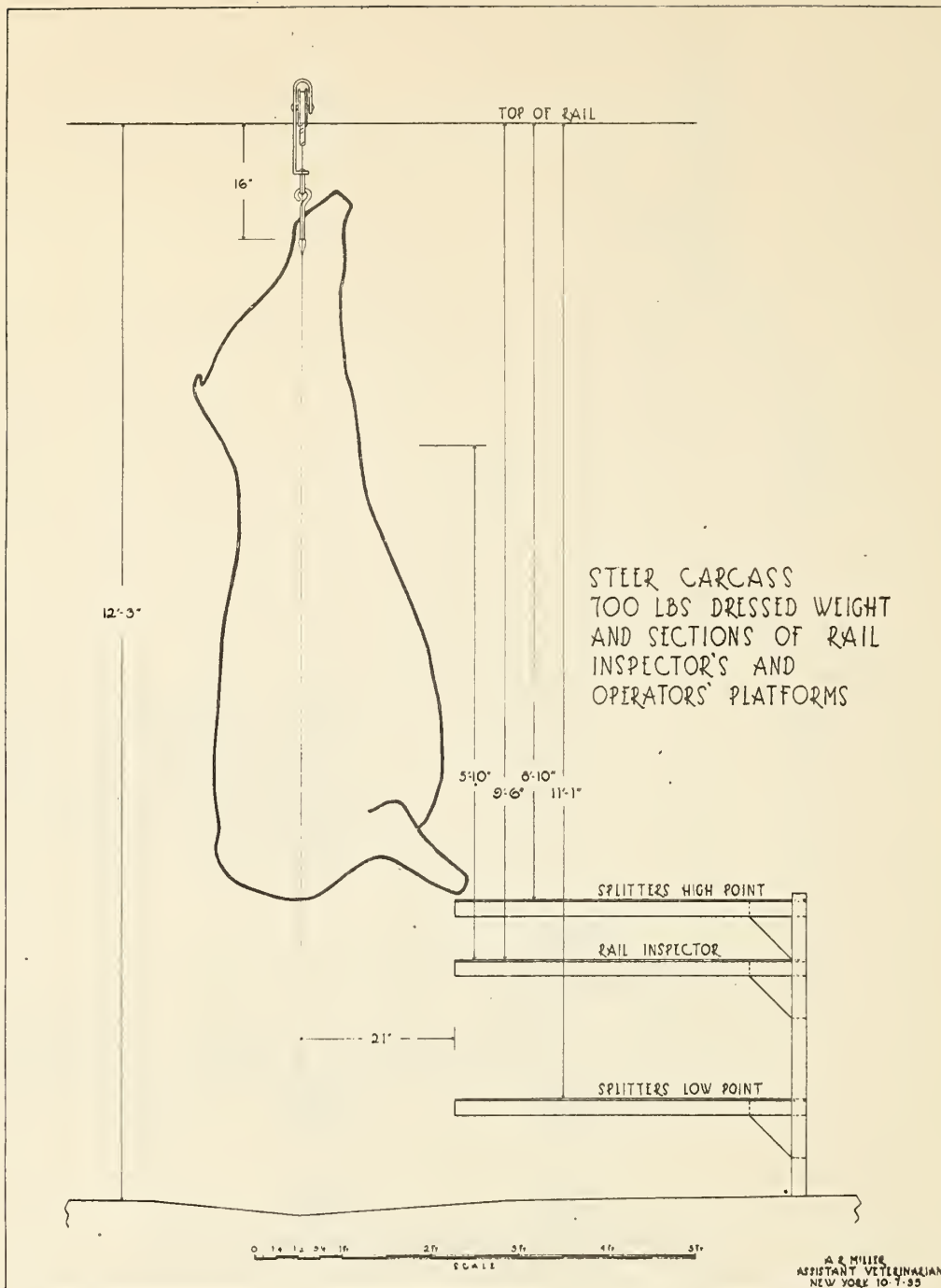
General

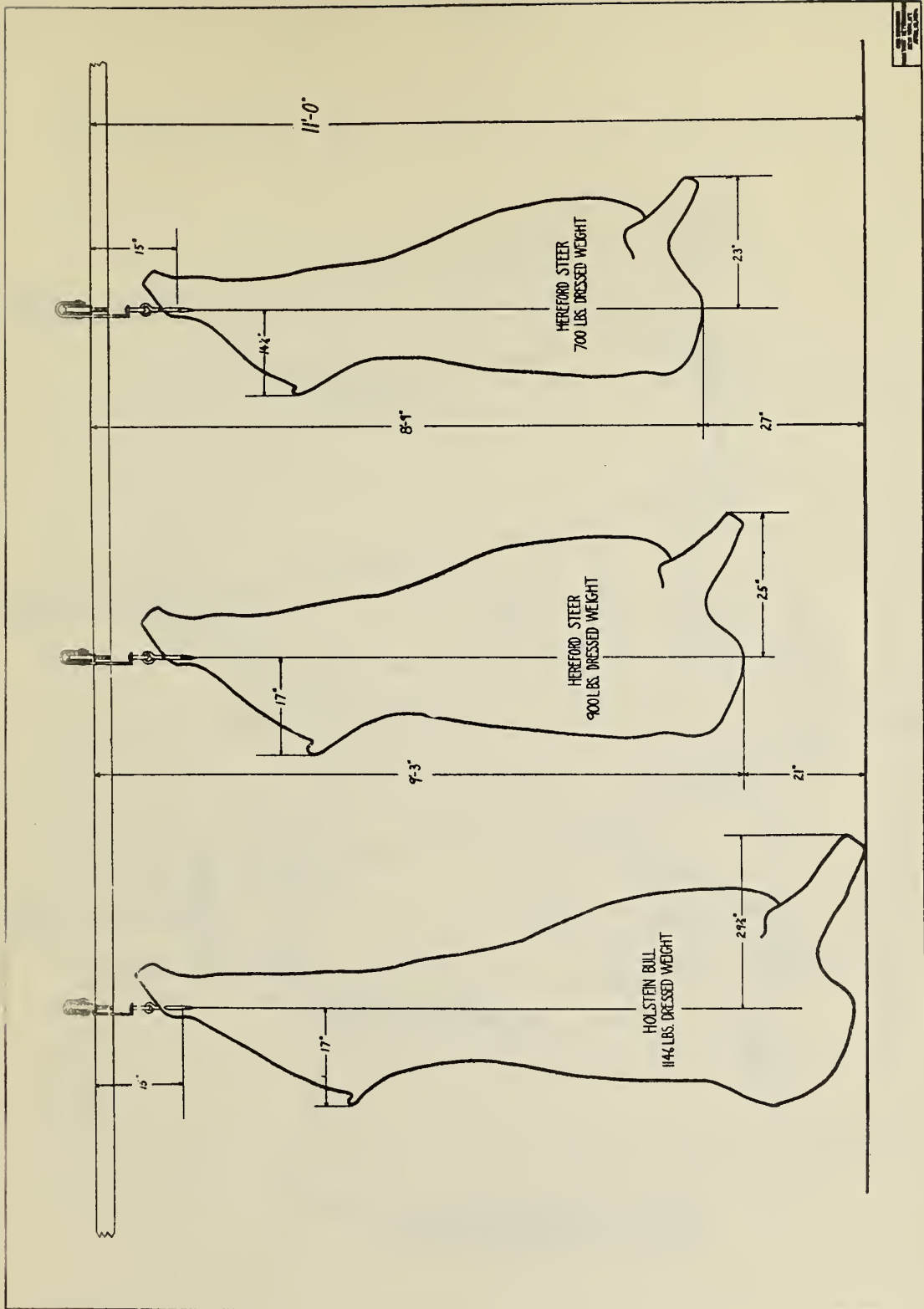
Description	Vertical Distances
Rails for sausage cages, etc.	7' 6"
Description	Horizontal Distances
From verticals of rails in slaughtering rooms, coolers, etc., to walls, posts and other fixed parts of the building	2' 0"
From vertical of conveyor rails for sausage cages to stuffing tables	5' 0"
From vertical of carcass rails to edge of boning or cutting table	5' 0"
Width of doors through which carcasses are railed or product conveyed in hand trucks	5' 0"
Truckways - unobstructed width	5' 0"

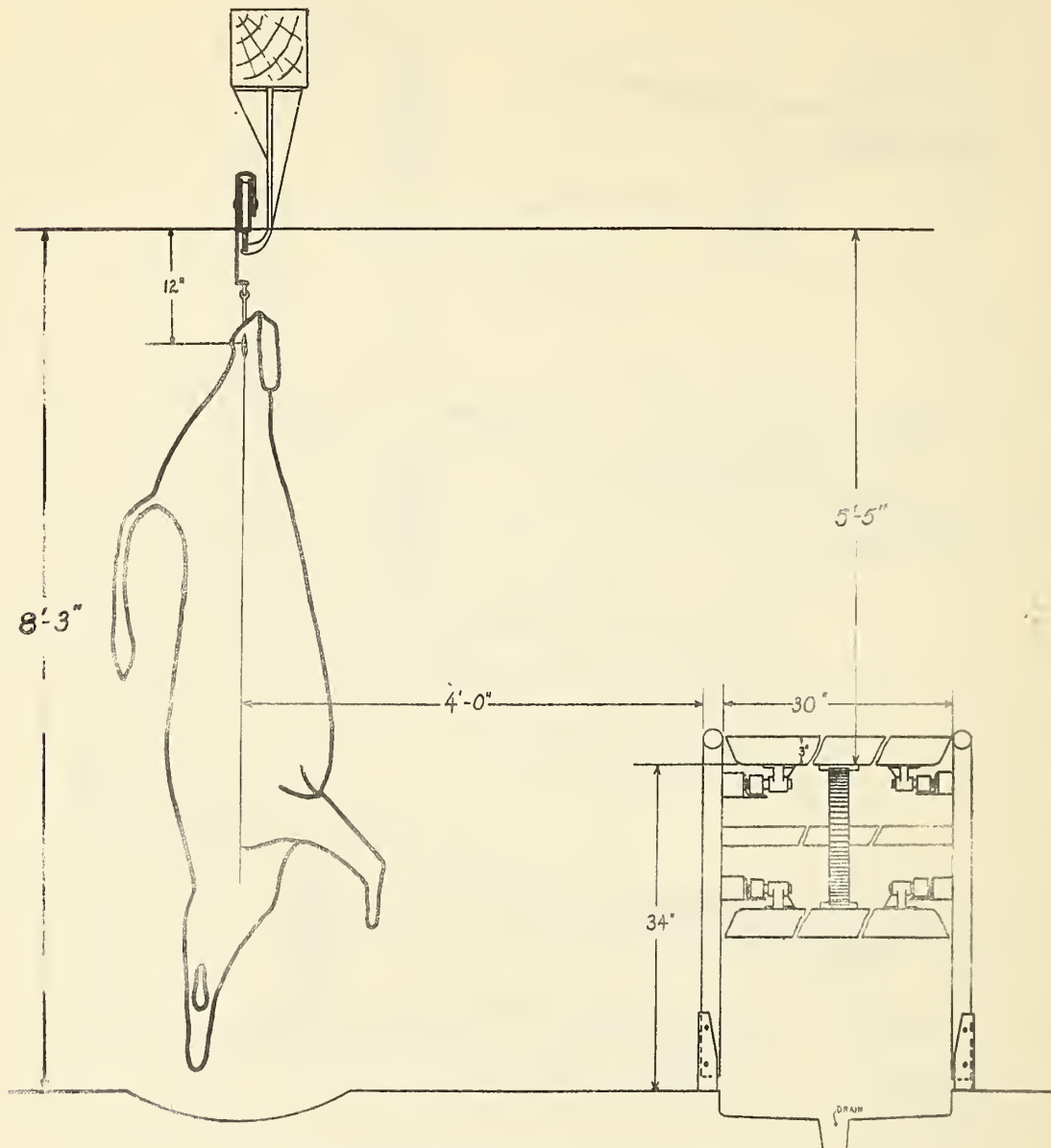






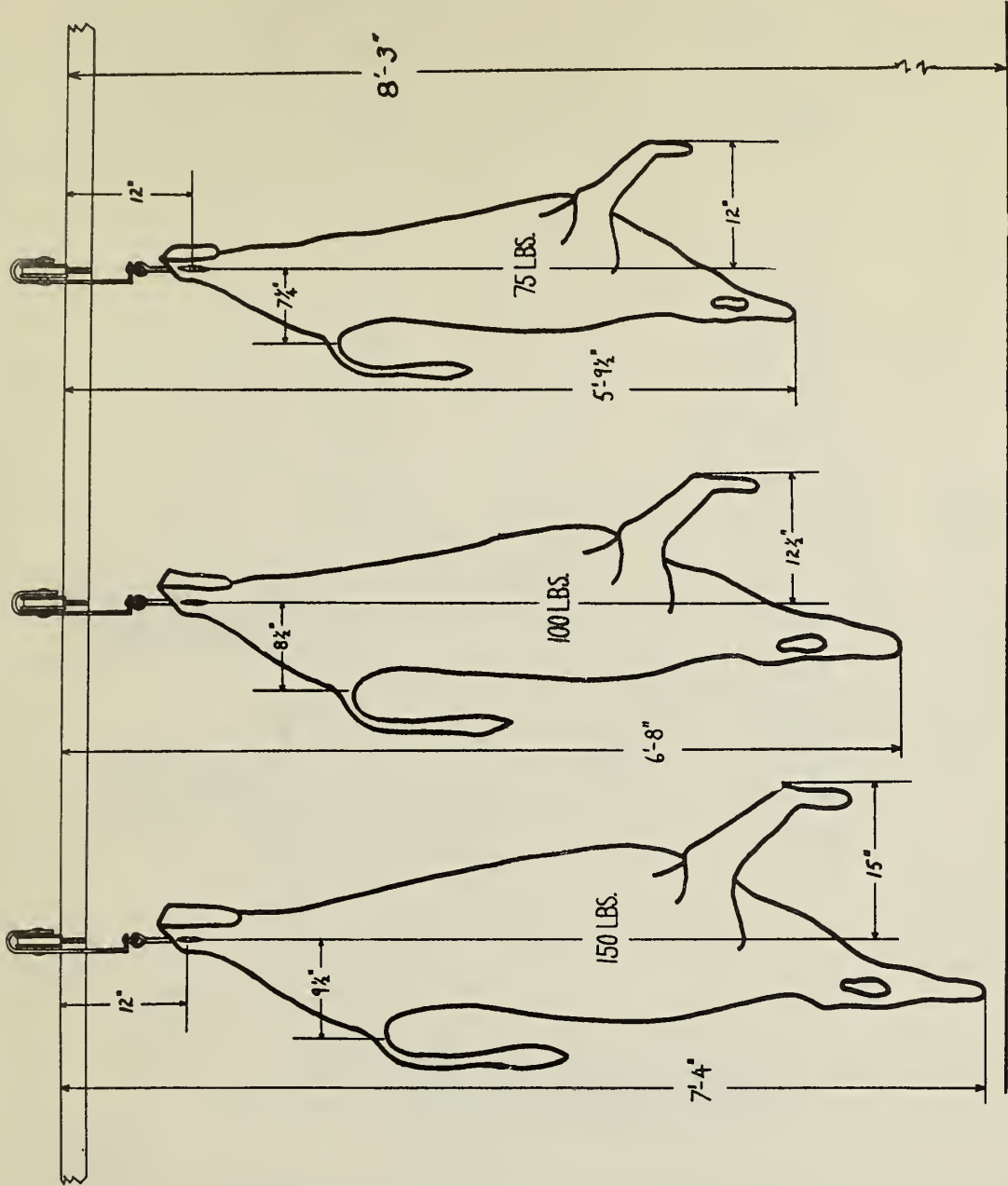


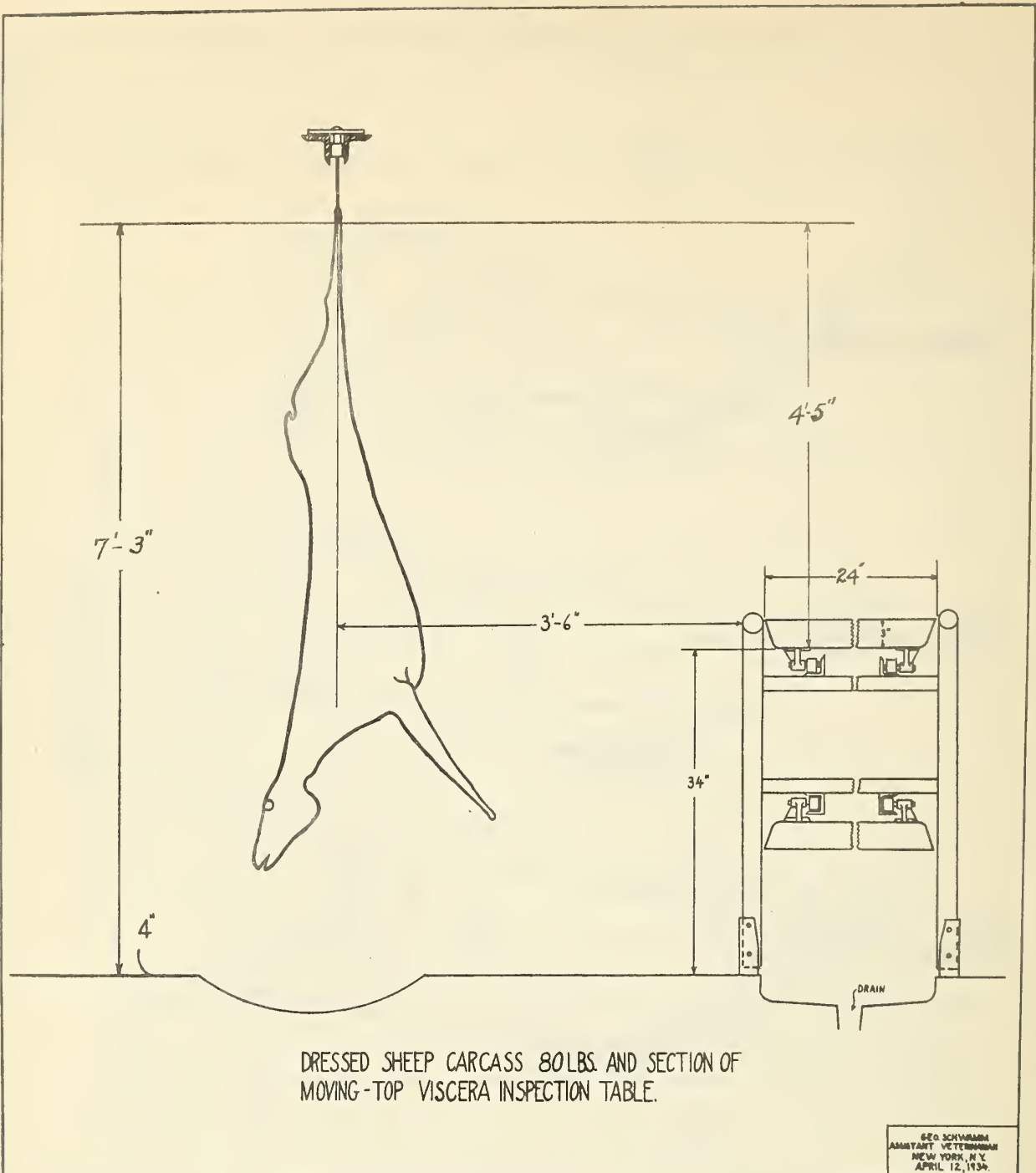


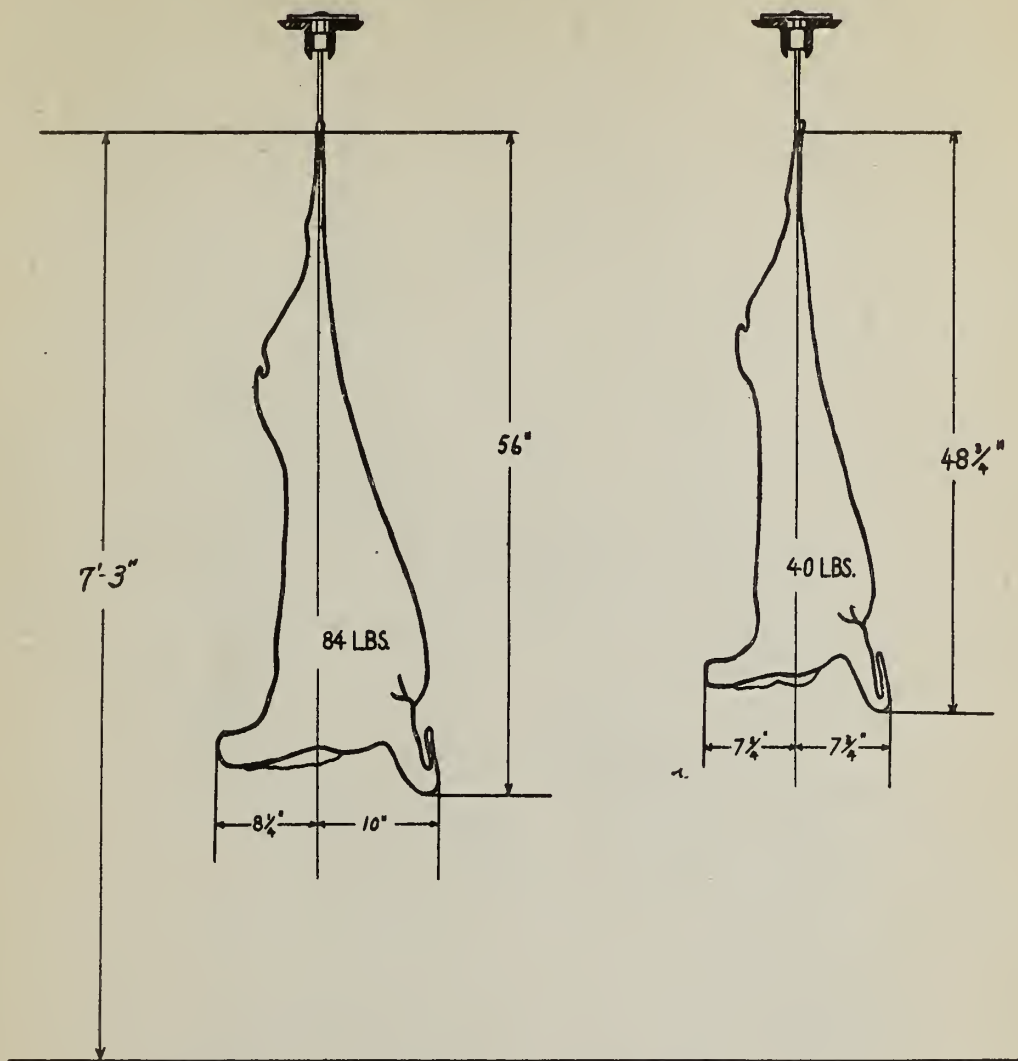


DRESSED CALF CARCASS 150 LBS. AND SECTION OF
MOVING-TOP VISCERA INSPECTION TABLE.

DRESSED CALF CARCASSES

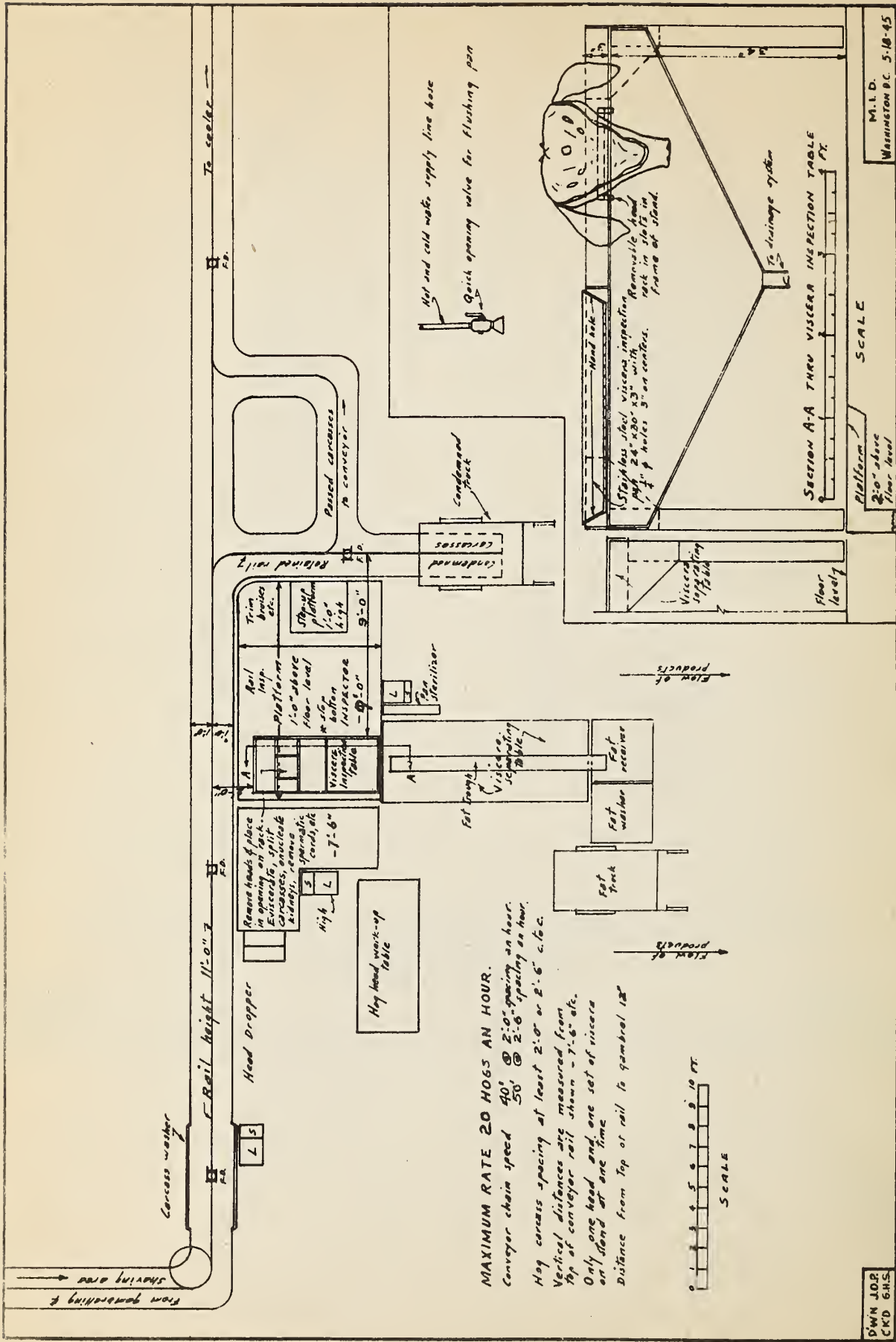






DRESSED SHEEP AND LAMB CARCASSES

GEO. SCHWABER
ASSISTANT VETERINARIAN
NEW YORK, N.Y.
APRIL 12, 1930.

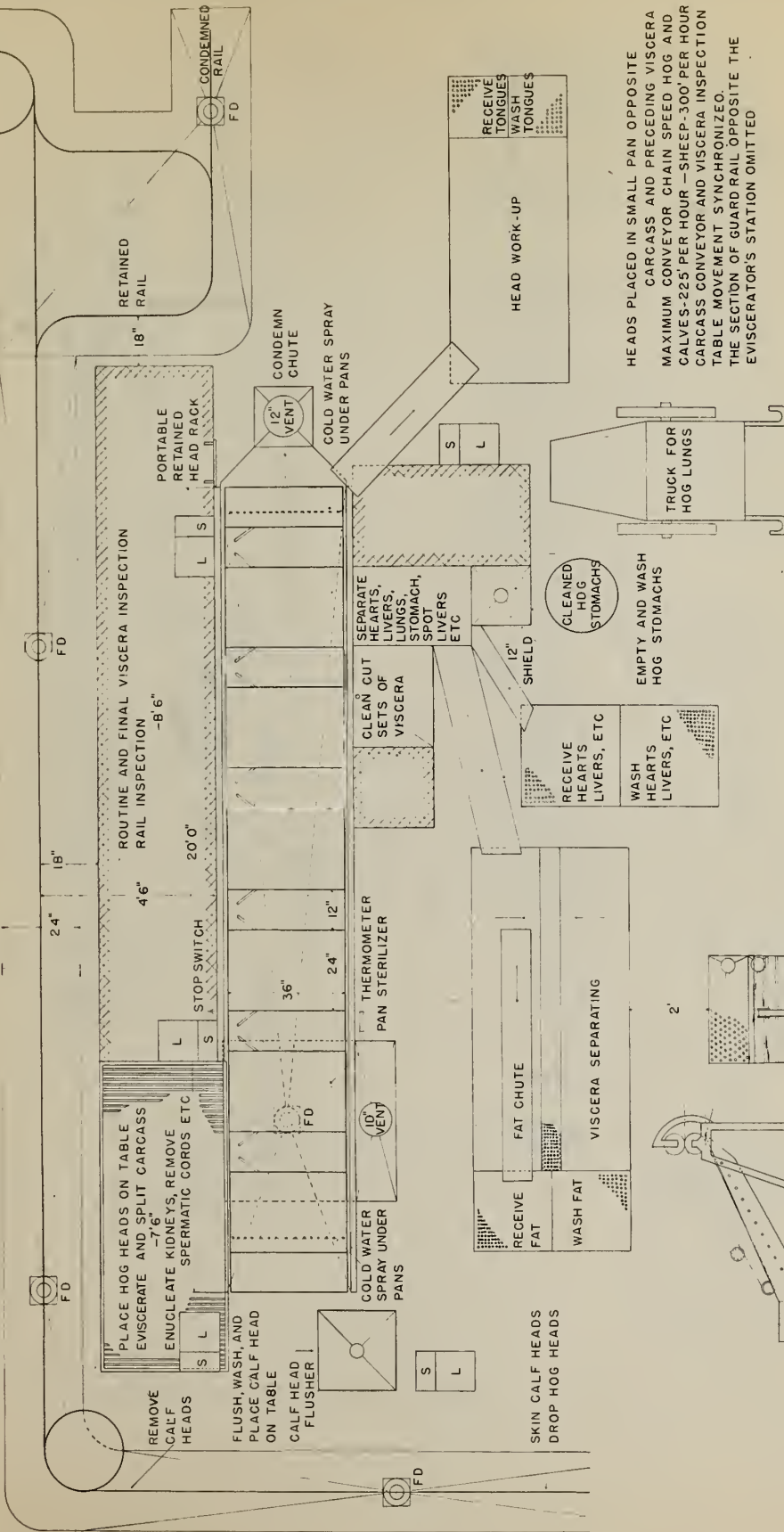


SLAUGHTER RATES

HOGS & CALVES 20-75 PER HOUR
 SHEEP 20-100 PER HOUR
 LENGTH OF VISCERA INSPECTION TABLE 20'0"
 SIZE OF PANS LARGE 24" x 36" x 3" — SMALL 12" x 36" x 3"
 CARCASSES SPACED 3" C TO C

DISTANCES

TOP OF RAIL TO BOTTOM OF INSPECTION PANS-5'8"
 VERTICAL OF RAIL TO INSPECTION TABLE 4'6"
 VERTICAL OF RAIL TO EDGE OF ALL FOOT PLATFORMS 18"
 RAIL HEIGHT ABOVE HIGH POINT OF FLOOR 11"



HEADS PLACED IN SMALL PAN OPPOSITE CARCASS AND PRECEDING VISCERA
 MAXIMUM CONVEYOR CHAIN SPEED HOG AND CALVES-225 PER HOUR —SHEEP-300 PER HOUR
 CARCASS CONVEYOR AND VISCERA INSPECTION TABLE MOVEMENT SYNCHRONIZED.
 THE SECTION OF GUARD RAIL OPPOSITE THE Eviscerator's STATION OMITTED

VERTICAL DISTANCES MEASURED FROM TOP OF CARCASS CONVEYOR RAIL TO PLATFORMS SHOWN AS MINUS FIGURES.
 DISTANCES FROM TOP OF RAIL TO GAMBRIL HOGS AND CALVES AND SHEEP 12" FLOOR UNDER VISCERA INSPECTION TABLE SEPARATELY DRAINED.

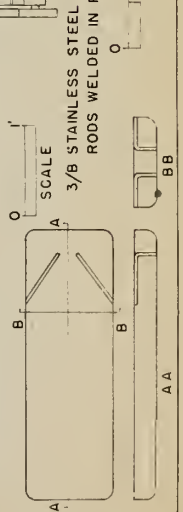
INSPECTION FACILITIES FOR HOGS, CALVES & SHEEP

J. T. JOHNSTONE
 ASSISTANT TO THE CHIEF
 WASHINGTON D. C.
 3-1-47

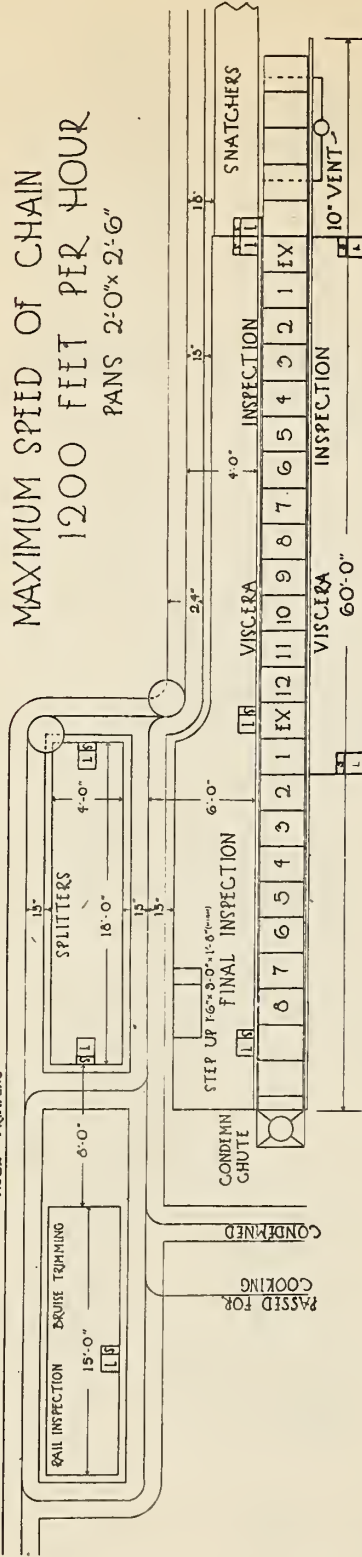
REVISED 10-30-48

SCALE

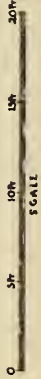
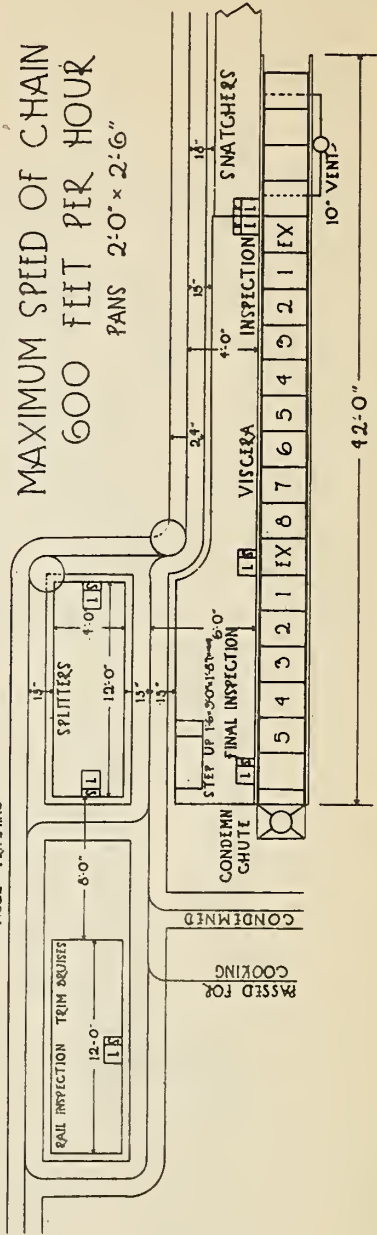
DETAIL OF HEAD PAN AND HOLDER

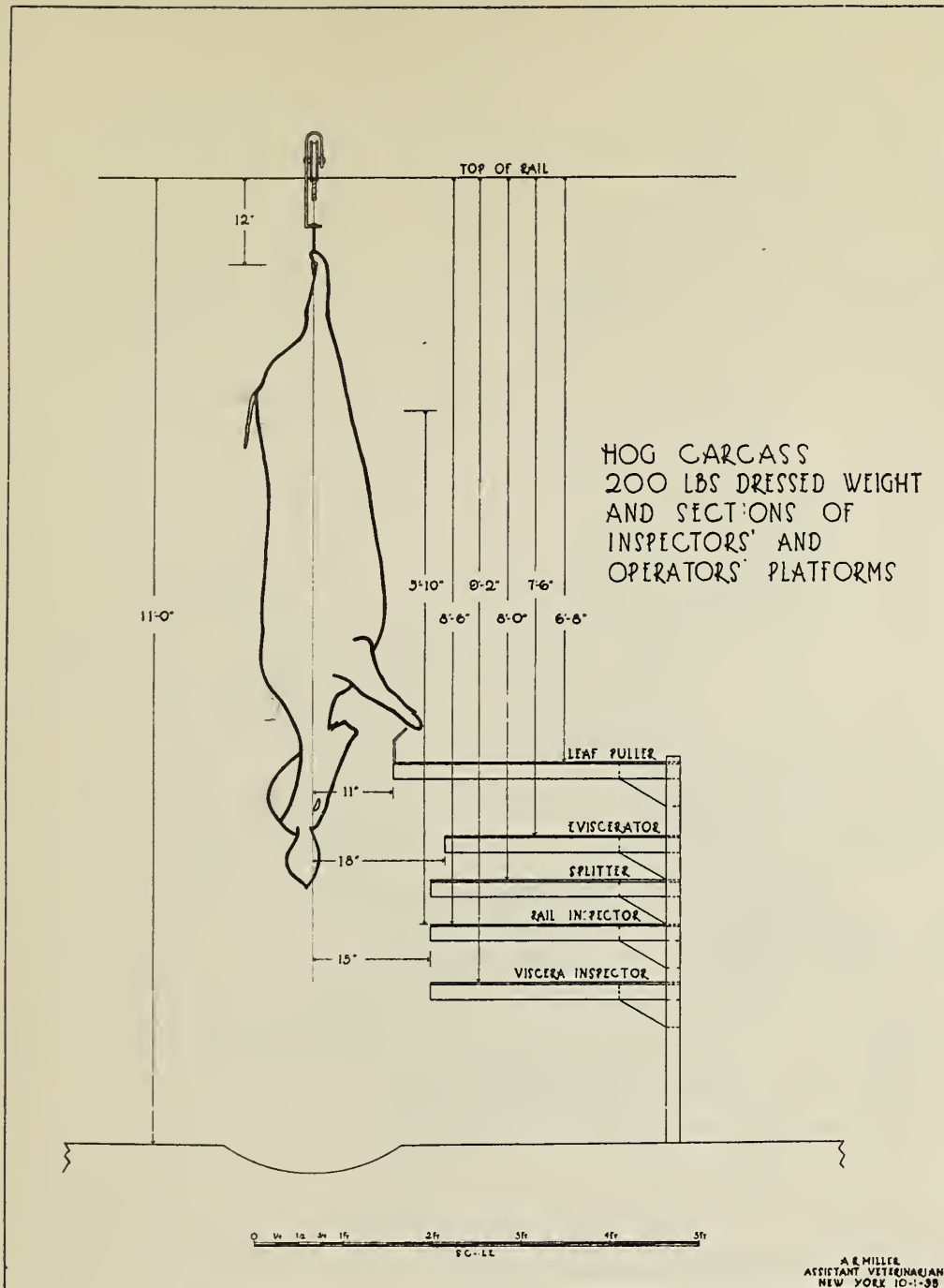


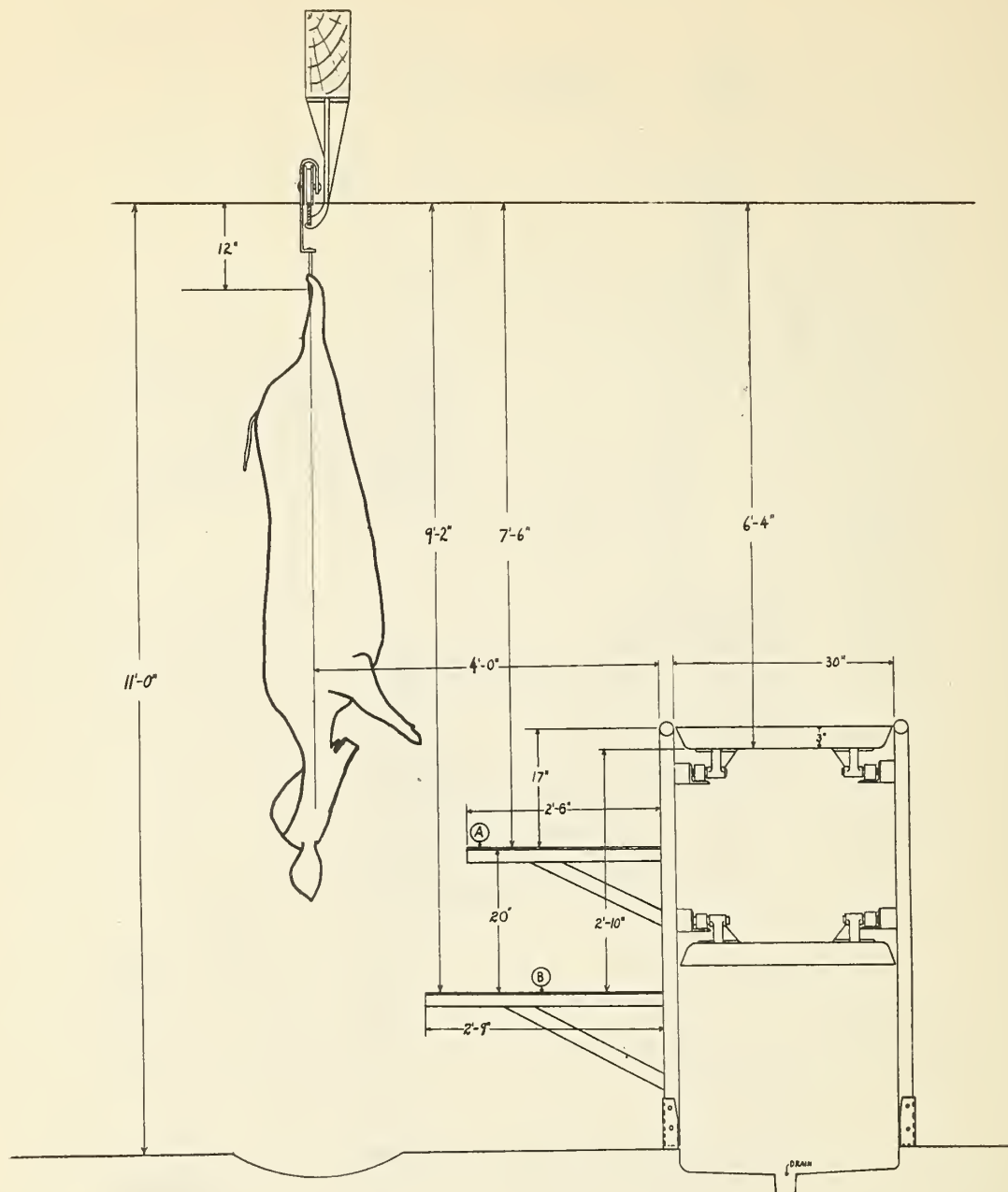
NECK TRIMMING



NECK TRIMMING

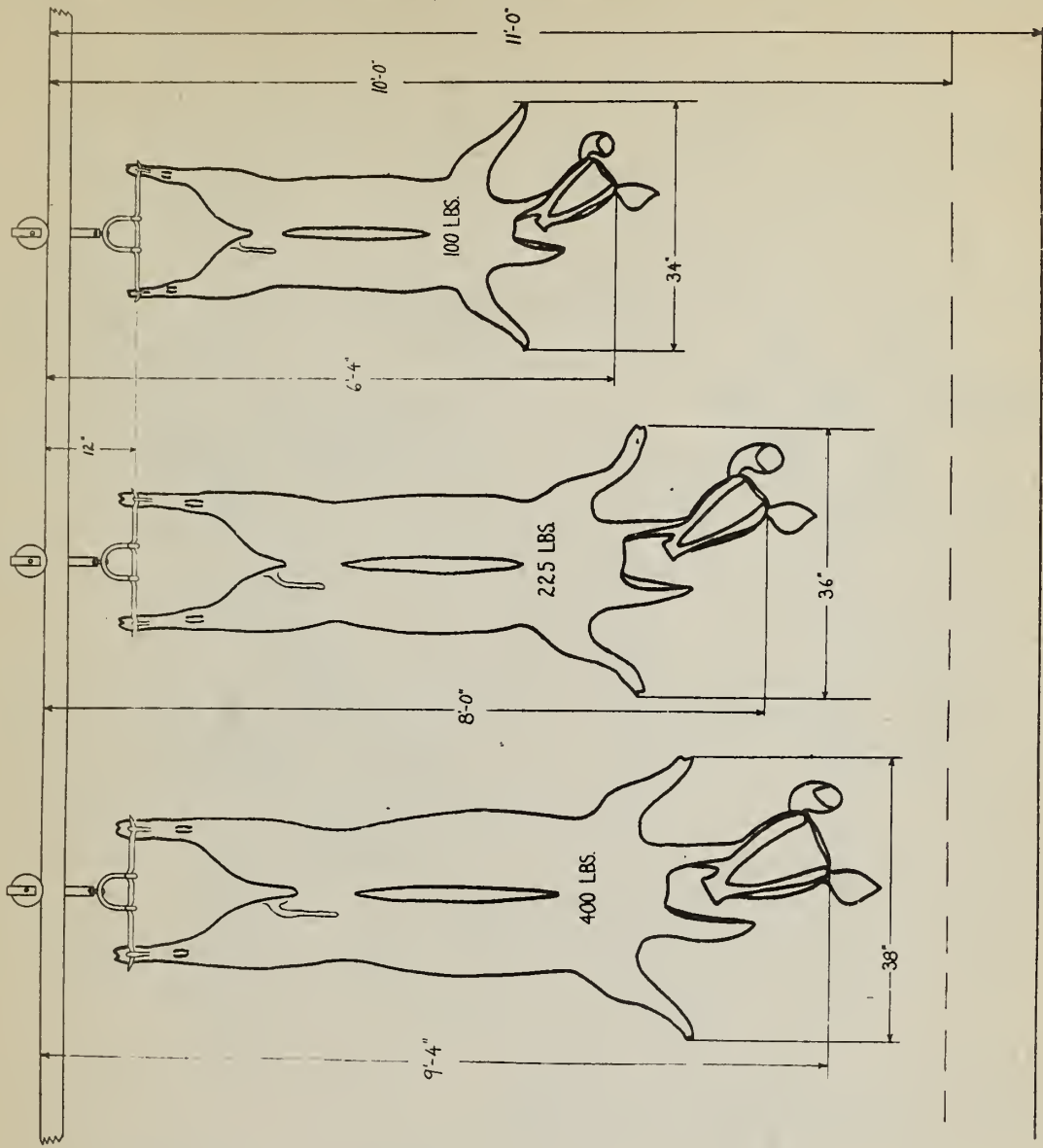






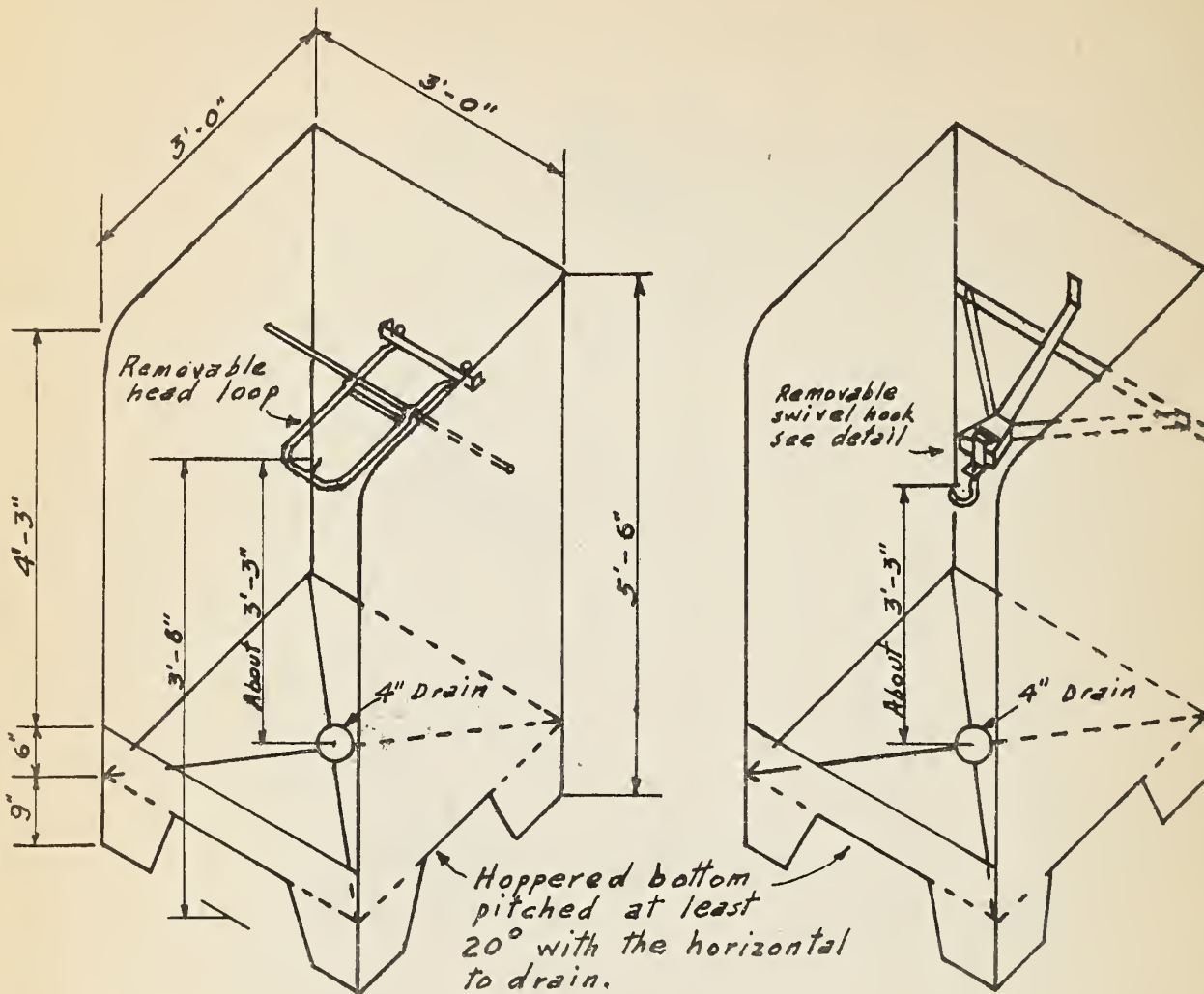
HOG CARCASS 200 LBS. DRESSED WEIGHT AND
SECTION OF MOVING-TOP VISCERA INSPECTION
TABLE. (A) EVISCERATOR'S PLATFORM
(B) INSPECTOR'S PLATFORM

CGS SYSTEM
ASSISTANT ATTORNEY GENERAL
NEW YORK, N.Y.
JANUARY 1942



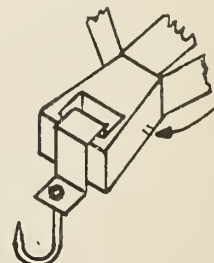
DRESSED HOG CARCASSES

TYPES OF CATTLE HEAD FLUSHERS & WASHERS



Constructed of rust-resisting metal (stainless steel), directly connected to drainage system through a deep seal trap. Area in which equipment is located has separate drainage.

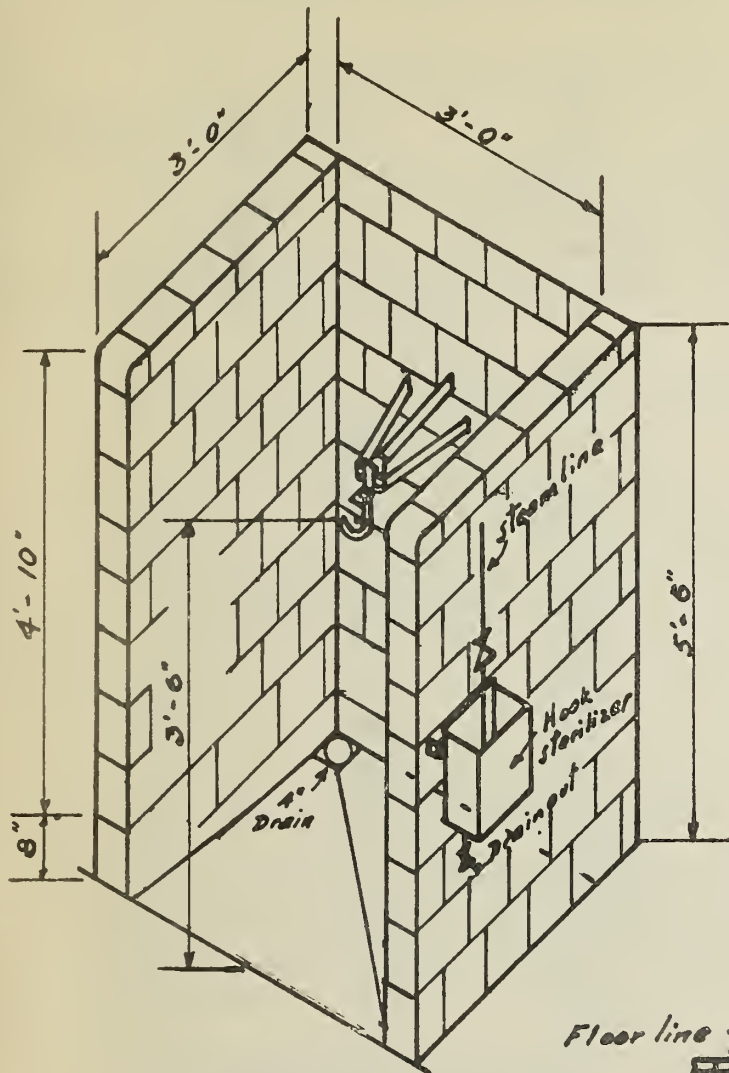
Dimensions of flusher used only for calf heads may be 2'-0" x 2'-0" in plan



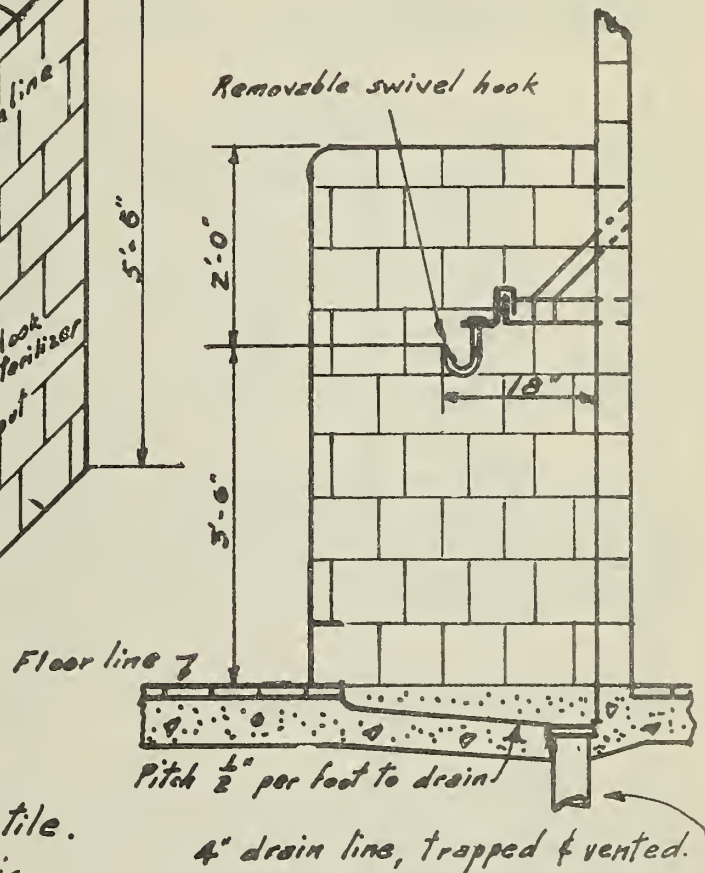
Holder has slot to permit insertion & removal of swivel hook.

Detail of removable swivel hook.

TYPE OF CATTLE HEAD FLUSHER & WASHER



CROSS SECTION

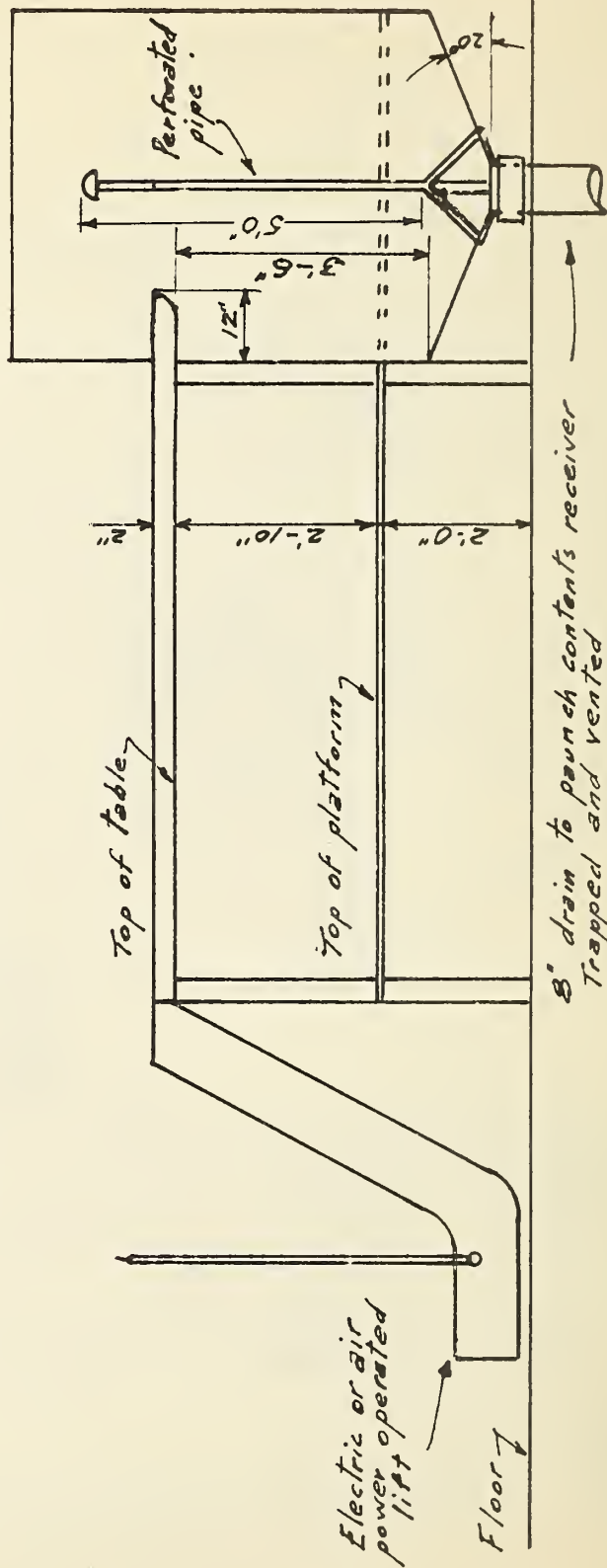
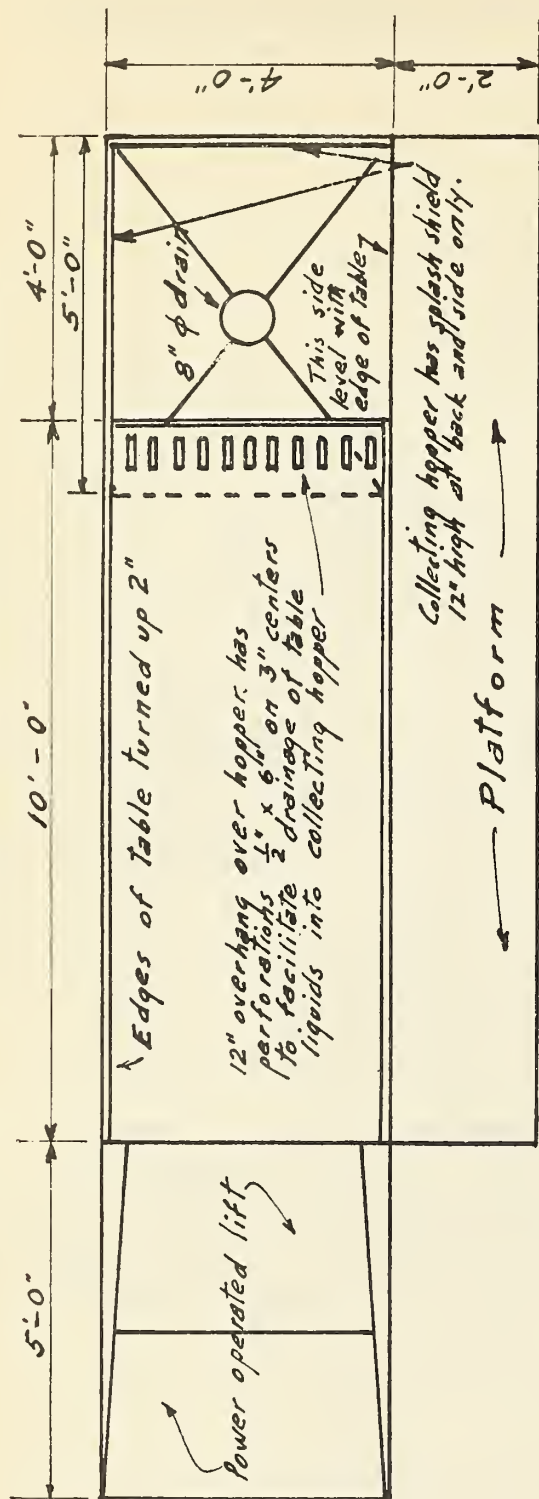


Constructed of glazed tile.
The bottom of the flusher is
depressed 3" below the floor
line, pitched $\frac{1}{2}$ " per foot to
floor drain located at the
back of the washer.

DWN. JOP.
C.R.D. GHS.

M. I. D.
WASHINGTON, D.C. 8-24-46

CATTLE VISCERA SEPARATING TABLE



SUGGESTED NOTATIONS OR SPECIFICATIONS TO ACCOMPANY DRAWINGS
OF SLAUGHTERING PLANTS COVERING DESIRED FEATURES
SOME OF WHICH SHOULD BE ALSO SHOWN ON THE DRAWINGS
(Subject to Variations Because of Differences in Projects)

BUILDING CONSTRUCTION

1. Portland cement plaster is to be used wherever the words "Cement Plaster" or the letters "P.C." appear on the drawings.
2. All walls are surfaced with portland cement plaster, steel trowel finish, unless otherwise noted.
3. All floors having drainage facilities are of brick or concrete and pitched about $\frac{1}{4}$ " per foot to floor drains. Floors where operations are conducted have a non-slip surface.
4. Ceilings are smooth and flat and have a smooth portland cement plaster finish except as otherwise noted. If there are exposed joists or rafters in the ceilings, they are of dressed lumber and are spaced 36" c. to c. or more.
5. Dressed lumber is used for all exposed interior woodwork.
6. Where paint is applied to exposed surfaces, a good grade of oil paint is used.
7. All window and door openings and other openings that would admit flies are provided with effective insect screens.
8. Glass in windows and skylights has a high transmissibility of light. Effective measures such as the use of heat absorbing glass, glass block or monitors and sawtooth skylights with sash facing north are taken to avoid objectionable heat and glare from the sun's rays during the summer season in workrooms.
9. Rails are placed not less than 2' from walls, posts, and other fixed parts of the building.
10. Two compartments constructed of wire partitions or expanded metal, about one-inch mesh, extending from about 2" above the floor to the ceiling, are provided as indicated on the drawings. One compartment is for holding retained carcasses and product and the other is for holding carcasses affected with *cysticercus bovis* at a temperature not higher than 15° F. for at least 10 days. The doors of these compartments are of similar material and are equipped for locking or sealing.
11. All doors of toilet rooms and dressing rooms and toilet room vestibules are solid, self-closing and completely fill the openings.
12. The hog scalding vat is constructed of metal. (Desired minimum lengths - 60 hogs per hour, 20'; 150 per hour, 40'; 300 per hour, 60'; 600 per hour, 90').
13. All inside window ledges are sloped about 45°.

14. Doorways through which product is transferred on rails or in hand trucks are at least 5' wide.
15. Suitable coves to facilitate sanitary maintenance are provided at junctions between walls and floors.
16. Glass block used in wall panels, etc. have smooth exposed surfaces.

WATER SUPPLY, PLUMBING AND DRAINAGE

1. The potable water supply is obtained from a driven well or wells on the premises, effectively protected from pollution. (If from city supply - so state).
2. An ample supply of hot water at adequate temperature and under suitable pressure and properly distributed throughout the plant is provided. Hose connections for supplying hot and cold water are provided in the various workrooms at the approximate locations shown on the drawings. The hot water supplied for cleaning and disinfecting equipment such as cattle viscera inspection trucks has a temperature at the outlets of at least 180° F. A thermometer is provided on the hot-water line at the place where viscera trucks are cleaned and disinfected.
3. Floor drainage lines inside buildings are of metal and at least 4" in diameter and are properly vented to the outside air to a point above the roof. All floor drains are equipped with deep seal traps.
4. Each lavatory (hand-washing basin) is supplied with hot and cold water delivered through a combination mixing faucet with outlet about 12" above the rim of the bowl, liquid soap in a suitable dispenser, an adequate supply of sanitary towels, and a suitable receptacle for used towels. Lavatories in workrooms are foot-pedal operated.
5. Sanitary drinking fountains are provided in the slaughtering room and in the dressing rooms. If placed adjoining a lavatory they are located high enough to avoid splash from the lavatory.
6. All equipment wasting water is installed so that waste water is delivered into the drainage system without flowing over the floor.
7. Blood drains are provided with long neck deep seal traps properly vented to a point above the roof.
8. Discharge lines for paunch contents are of cast iron or steel pipe at least 8" in diameter and extend to a paunch contents receiving bin so arranged that liquids may be readily drained from the material and the material transferred to a water-tight truck for removal from the plant. The paunch contents are removed daily or oftener if deemed necessary by the inspector in charge and hauled to a point well removed from the plant and plowed under or otherwise acceptably disposed of. The construction of the bin is shown on a detail drawing and the area adjoining the bin where the truck stands during loading is paved with concrete and provided with suitable drainage facilities. A hose connection for supplying hot water for clean-up

of the bin is provided nearby. The capacity of the bin is sufficient for holding the paunch contents derived from the maximum daily slaughter of cattle. At least $2\frac{1}{2}$ cubic feet capacity per animal is provided.

9. Blood is discharged into a metal receiving tank and transferred by gravity or a pump or blow line to a metal truck for removal from the plant (unless processed at the plant).
10. Hog hair is removed from the slaughtering room in water-tight metal containers at the end of the day's operations and removed from the plant in a water-tight metal truck and disposed of in such manner as to not create objectionable conditions such as fly breeding or odors (unless acceptably disposed of at the plant).
11. The grease catch basin is constructed so that it can be completely drained of its contents for cleaning daily and is without cover for ready inspection. Grease skimmed from the basin is placed in water-tight metal containers and promptly removed from the plant (unless rendered at the plant). A hose connection for supplying hot water for cleaning the basin is provided in a convenient location. Area around basin is paved with concrete and provided with drainage facilities. The construction of the basin is shown on detail drawing.
12. The sewage from the plant is disposed of by discharging it into the city sewer system (furnish description of facilities if other method of disposal is employed).

EQUIPMENT

1. All stationary equipment not readily movable is placed not less than 12" from floors, walls, and ceilings and other stationary equipment to facilitate ready cleaning of outer surfaces.
2. All equipment except cutting boards of boning tables and the like is of metal construction and so constructed that it can be readily kept clean.
3. Edible offal is placed on cages with removable metal drip pans beneath or on suitable trucks provided with similar drip pans and conveyed to the offal cooler. If packed in the cooler, suitable facilities, including a table and a lavatory are provided.
4. The paunch-emptying table is constructed of metal and the end of the table overhangs the emptying hopper about 12" to avoid soiling the cut and serous surfaces of paunches. The sides of the hopper extend vertically below the top of the table at least 3' and then converge to a discharge opening at least 8" in diameter. (See detail drawing).
5. Suitable mechanical equipment is provided for transferring condemned material to metal containers without manual handling of the condemned product.

6. Booths for flushing and washing cattle heads and calf heads, similar to the equipment shown in "Information for Applicants for Federal Meat Inspection" are provided. All horns and horn butts and pieces of skin are removed from cattle and calf heads before they are flushed and washed. Horns, horn butts and pieces of pelt are removed from sheep heads before carcasses are washed after pelting if the heads are saved for edible purposes.
7. The inspector's office is provided with a suitable desk and chairs and two metal lockers of at least the size provided for employees, one with hooks for clothing and the other with shelves for supplies. Each of these lockers is equipped for locking.
8. Each employee is provided with a metal locker at least 15" x 18" x 60", having a sloping top and with bottom elevated on legs about 16" long. Removable wood seats about 12" wide are provided in front of and below the doors of the lockers. The men's dressing room will be used by not more than (give number) men.
9. The pans of the moving top viscera inspection table are constructed of stainless steel or similar rust resisting metal (pan sizes are given on drawings). The guard rail is omitted from the section of the viscera inspection table opposite the eviscerator's station. A suitable pan sterilizer is provided at the proximal end of the table. The sterilizer is without bottom and the sides extend upward from about 2" above the floor. The sterilizing chamber is provided with a vent pipe to the outside air at least 10" in diameter. A thermometer with its sensitive element in the hot water line as it enters the sterilizer and with temperature recording scale located so that it can be readily observed by the inspector working alongside the viscera inspection table is provided. A floor drain is provided beneath the sterilizer and the area in which the viscera inspection table is located has separate drainage. Cold water sprays are provided at the proximal and distal ends of the table. The movement of the viscera inspection table is synchronized with the movement of the carcass conveyor. The viscera inspection table is driven by a shaft and worm drive and the carcass conveyor and the viscera inspection table are motivated by the same drive. A stop button for controlling the movement of the carcass conveyor and the viscera inspection table is provided in a location convenient for use by the inspector.
10. A suitable room or space and facilities for washing gambrels, beef hooks, and other equipment are provided in a convenient location as shown.
11. A suitable room or space for the storage of supplies, such as wrapping paper, cartons and containers, is provided in a convenient location as shown.
12. Chutes for the transfer of product are so constructed that they can be readily cleaned (long chutes, due to difficulty of cleaning, should be avoided). Chutes leading from edible to inedible products departments are effectively hooded and vented.

OPERATIONS

1. Animals are not slaughtered by the Kosher method (if only non-Kosher slaughtering).
2. Hides are not spread for inspection in the slaughtering room.

3. Condemned and inedible material is transferred to the inedible products room and placed in suitable water-tight metal containers and removed daily, or oftener if deemed necessary by the inspector in charge, to an outside rendering plant for disposal (if no tankhouse at plant). Suitable facilities for washing the containers used for such materials are provided in the room.
4. Calf heads are removed from carcasses before they reach the point of transfer, flushed and washed in the equipment shown on the drawings, and hung on hooks spaced midway between carcasses. Heads are placed ahead of the corresponding carcasses. Suitable automatic facilities for sterilizing calf head hooks in scalding hot water are provided. Calf heads are suspended at such height that the cut surfaces are 4' above the floor or the inspector's foot platform. (This item applies only to carcass conveyor installations.)
5. Calves of such size that the viscera cannot readily be transferred manually and unaided by the eviscerator from carcasses to the inspection stand are not slaughtered on the calf inspection layout. Large calves are skinned and eviscerated as cattle on the cattle slaughtering beds.
6. Animals found dead on the premises are disposed of by prompt removal to a rendering plant. (If there is not an inedible products rendering department at the establishment).
7. Only clean and not re-circulated water is used in the hog dehairer. (This applies to small installations. In large installations, clean water is required in the last third of the dehairer).
8. The maximum hourly rates of slaughter are: (give rates for each species).
9. Duplicate tags are provided to identify heads with corresponding carcasses.
10. Pieces of meat are washed individually in running water and not in batches.
11. Udders are not saved for edible product (if saved show the facilities for handling and inspecting them.)

GENERAL (Some of these items apply to plants where meat processing as well as slaughtering operations are conducted).

1. Each workroom and compartment is provided with artificial lighting of good quality having an intensity of at least 20 foot candles for general illumination and at least 50 foot candles at places where inspections are performed and where plant operations require establishment employees to properly prepare products of any character to meet the inspection requirements.

2. The livestock pens are paved with impervious material such as concrete or brick and pitched to suitable drainage facilities. Curbs of impervious material such as concrete at least 12" high are provided around the borders of the livestock pen area, except at entrances, to confine liquids and material. A suitable suspect pen and squeeze pen are provided in locations shown on drawings. Good artificial lighting for the performance of ante-mortem inspection at times when there is insufficient daylight is provided in the livestock pen area. Well-located hose connections are provided for the clean-up of the livestock pens.
3. Heat to dispel steam and vapor is provided in unrefrigerated workrooms.
4. Refrigerated rooms are maintained at a temperature not higher than 50° F.
5. The coolers are refrigerated by means of (give types and locations of refrigeration units). Overhead refrigerating units have insulated drip pans beneath them, properly connected to the drainage system. Floor-type refrigerating units are placed in curbed-in areas, having separate drainage facilities. Wall refrigerating coils have drip gutters of impervious material such as concrete beneath them, properly connected to drainage system.
6. Empty cans are washed in an inverted position with water having a temperature of at least 180° F. immediately before filling.
7. An incubation room for incubating samples of fully processed canned meat product is provided in a suitable location. The room is of adequate size for holding not less than 1% of fully processed canned product from each run of each retort for at least 10 days. The temperature in the room is maintained by thermostatic control at approximately 98° F. The floor in the room is pitched to a floor drain equipped with a removable screw plug. The door of the room is equipped for locking or sealing.
8. Vegetables are stored in bulk in a suitable separate room and are handled so as to avoid dissemination of dust. Suitable facilities for preparing vegetables for use in product are provided. Vegetables such as celery and potatoes are thoroughly washed before being cut up into smaller pieces as by dicing.
9. Effective means are taken to prevent back-siphonage of liquids into the potable water supply system, including placing the outlets of potable water supply lines to equipment such as hog scalding vats and cooking vats higher than the highest level reached by liquids in the vats.
10. Cooking vats and like equipment are provided with overflow pipes at least 2" in diameter having open-end cleanout tees at their upper ends.

11. A suitable room or separately drained area is provided for washing hand trucks, boxes, trays, demountable parts of sausage stuffing equipment, etc. Two suitable compartments with entrance rails are provided for washing smoke-house cages and trees. The first compartment is used for washing cages and trees with a caustic solution, and the second for rinsing this equipment with clean water after treatment with caustic solution.
12. Outer clothing of employees, shroud cloths, etc., are laundered at the plant laundry or at an outside laundry.
13. The rendering units and driers in the inedible products rendering department are equipped with effective condensers to suppress objectionable odors. Rendering units are provided with effective means for sealing openings.
14. Roadways on the premises adjoining the plant are hard surfaced and have a binder of asphalt, tar or cement.
15. Toilet soil lines are separate from house drainage lines to a point outside of the building and by-pass the grease catch basin. (If there is one at the plant).
16. Clothing lockers have effective means for ventilation such as doors having louvered openings of adequate size or doors constructed of expanded metal or heavy wire mesh.
17. Effective means such as expanded metal or wire with a mesh not exceeding $1/2$ " embedded in the walls and floors at their junctions and extending vertically and horizontally an adequate distance, or other effective means, are provided to exclude the entrance of rats and other rodents into rooms.
18. Eviscerators' platforms are constructed of suitable metal gratings of a type that can be readily cleaned (not subway type grating) or other suitable types of platforms such as moving metal slat platforms are provided.
19. Floor openings for chutes, etc., and for stairways except at entrances have curbs of impervious material such as concrete at least 12" high to exclude floor drainage.
20. A suitable metal table with top about 3' x 5' is provided in an unobstructed space in a cooler for holding returned product for inspection.

